/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('b', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D'), ('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C'), ('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('f', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('f', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('f', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('f', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('g', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('g', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('b', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('b', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('d', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('d', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('d', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('d', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('d', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('d', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('d', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('d', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('e', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('e', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('e', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('e', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('e', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('e', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('f', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('f', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('f', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('f', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('g', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('g', 'B')]}, {'condition\_action\_pairs': [('g', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('b', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('b', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('f', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('f', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('f', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('f', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('g', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('f', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('g', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

f

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'D'), ('b', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'D'), ('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('b', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('a', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D'), ('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C'), ('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('b', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('c', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('d', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('e', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('f', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('f', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('f', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('f', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('g', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'B'), ('h', 'A')]}, {'condition\_action\_pairs': [('g', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('b', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('b', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('a', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

a

root is:

{'s0', 's3'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('c', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('c', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('b', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

b

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('d', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('d', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('c', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

c

root is:

{'s2'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'D'), ('e', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'C'), ('e', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('d', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

d

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'D'), ('f', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'C'), ('f', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('e', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

e

root is:

{'s1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('f', 'D'), ('g', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('f', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('f', 'C'), ('g', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('f', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

f

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('g', 'D'), ('h', 'C')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Current Strategy: [{'condition\_action\_pairs': [('g', 'A'), ('h', 'B')]}, {'condition\_action\_pairs': [('g', 'C'), ('h', 'D')]}]

initial transition matrix: [['II', 'AC,AD', 'BC,BD', 'IC'], [0, 'II', 'AD,BD', 'AC,BC'], ['AC,BD', 'IC', 'II', 'AD,BC'], [0, 'AI', 0, 'II']]

actions\_agent1

['B', 'A']

actions\_agent2

['D', 'C']

g

root is:

set()

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 'IC'], [0, 'II', 0, 0], [0, 'IC', 'II', 0], [0, 0, 0, 'II']] modified by agent 1

g

root is:

set()

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

h

root is:

{'s0', 's3', 's2', 's1'}

new transition matrix: [['II', 0, 0, 0], [0, 'II', 0, 0], [0, 0, 'II', 0], [0, 0, 0, 'II']] modified by agent 2

('!', ('AG', 'a'))

root is:

\_!

/

\_\_\_\_\_\_AG

/

{'s0', 's3'}

node left:

\_\_\_\_\_\_AG

/

{'s0', 's3'}

<class 'binarytree.Node'>

node left:

{'s0', 's3'}

<class 'binarytree.Node'>

{'res': "Result: {'s2', 's1'}", 'initial\_state': 'Initial state s0: False'}

Im HERE

False, no states satisfying !(AGa) have been found!

Elapsed time is 26.636678457260132 seconds.