Foundations of Agents: Practical Assignment 1

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1 Formalization

1.1 Description of States

Notation:

- a = small disk,
- b = big disk,
- 1 = pin1,
- 2 = pin2,
- 3 = pin3,
- ab = a is on b

We have 9 different possible states:

State	Pin		
s_0	ab1	2	3
s_1	b1	a2	3
s_2	1	a2	b3
s_3	1	2	ab3
s_4	b1	2	a3
s_5	1	b2	a3
s_6	1	ab2	3
s_7	a1	b2	3
s_8	a1	2	b3

1.2 Description of Actions

We have 6 different actions that the agent can take.

Action	effect
a_1	move a to pin1
a_2	move a to pin2
a_3	move a to pin3
b_1	move b to pin1
b_2	move b to pin2
b_3	move b to pin3

1.3 Behaviour

One possible behaviour for moving disks from Pin1 to Pin3 is the following:

do(move-disks-from-pin1-to-pin3) is a composite action and therefore can be split into the following actions:

do(move-DiskA-to-Pin2; move-DiskB-to-Pin3; move-DiskA-to-Pin3)

There are also other possible actions that would achieve do(move-disks-from-pin1-to-pin3), but I chose the shortest one possible.

2 Kripke Structure