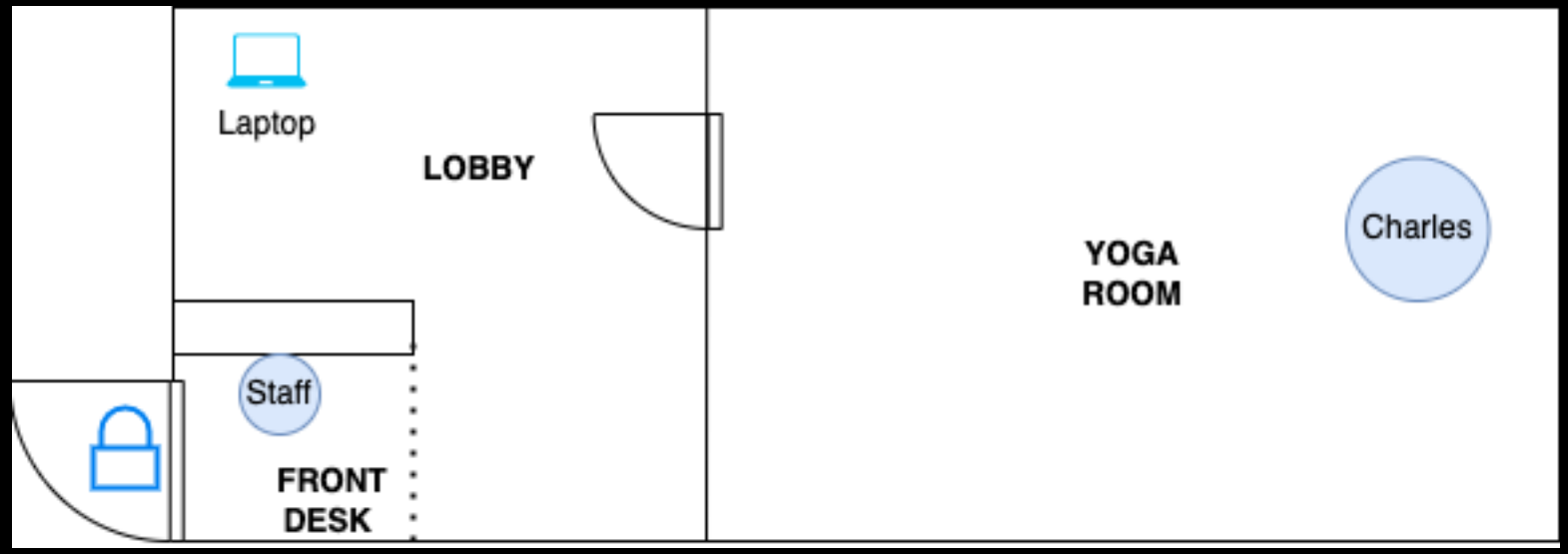
Kripke Structure: Laptop in Yoga Studio

- A laptop owner leaves their laptop in the lobby while in yoga class.
- The laptop is secure for the laptop owner, from anyone who is not the laptop owner.



{S,…}

KEY:

D = Door
X = Locker

S = Staff
F = Front Desk

B = Laptop
C = Laptop Owner

{

{[D,X],[S,F],[B,C]},

{[D,¬X],[S,F],[B,C]},

{[D,X],[S,¬F],[B,C]},

{[D,¬X],[S,¬F],[B,C]}

{[D,X],[S,F],[B,¬C]},

{[D,¬X],[S,F],[B,¬C]},

{[D,X],[S,¬F],[B,¬C]},

{[D,¬X],[S,¬F],[B,¬C]}

}

↔

{

{X, F, C},
{F, C},
{X, C},
{C},
{X, F},
{F},
{X},
{∅}

}

{S,I...}

I ⊂ S: I is a subset of S where [B,C] (Laptop is with Owner)

{
{X, F, C},
{F, C},
{X, C},
{C}
}

{S,I,R…}

- $R \subset S \times S$

	{X,F,C}	{F,C}	{X,C}	{C}	{X,F}	{F}	{X}
{X,F,C}	0	1	1	0	1	0	0
{F,C}	1	0	0	1	0	1	0
{X,C}	1	0	0	0	0	0	1
{C}	0	1	0	0	0	0	0
{X,F}	1	0	0	0	0	1	1
{F}	0	1	0	0	1	0	0
{X}	0	0	1	0	1	0	0

{S,I,R,L}

$L \subset S \rightarrow 2^{AP}$

The label of each atomic proposition is the same as the label of each agent's state:

AP =

[x : state == X,
f : state == F,
c : state == C]

The Door is Locked.
The Staff Person is at the Front Desk.
The Laptop is with the Owner.

Kripke Diagram

Key:
S = Blue
I = Yellow
R = Fuchsia
L = Black