Abstraction heuristics

Merge & Shrink - example

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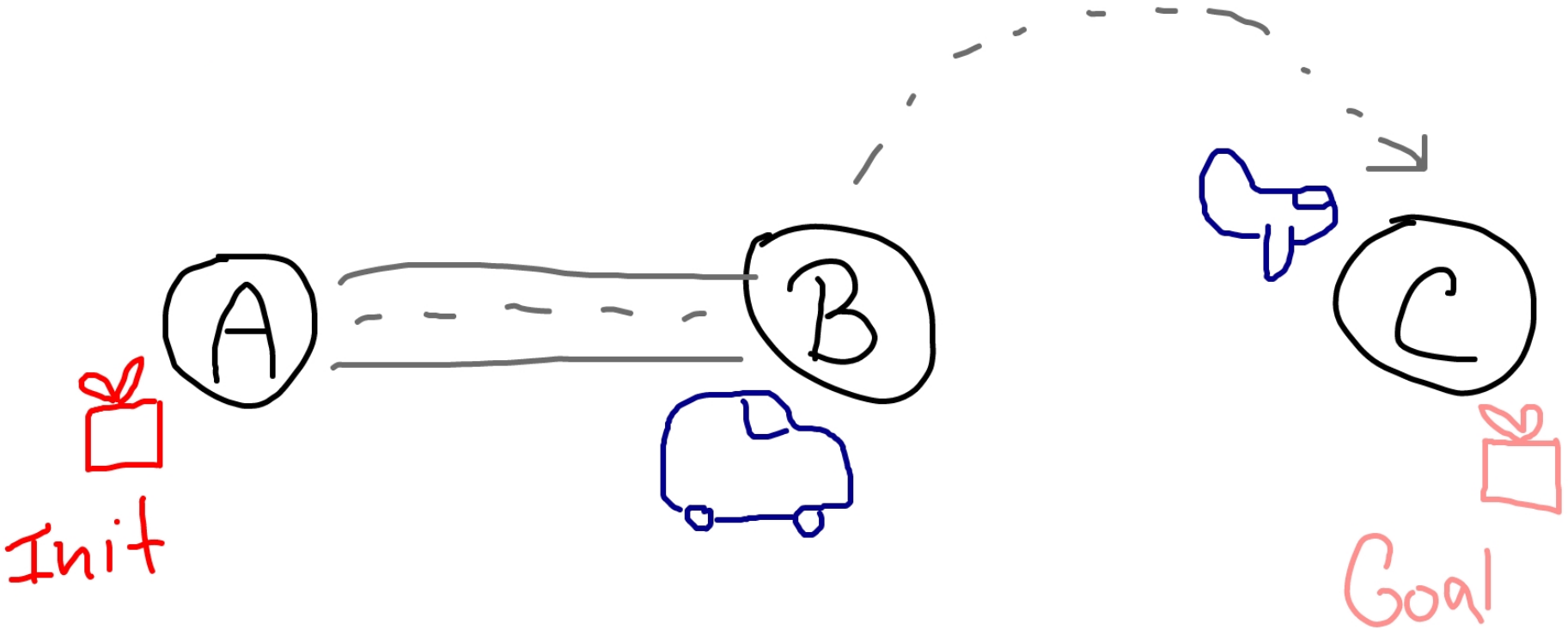
PUI Tutorial
Week 8

Logistics example



Logistics example slighly different (from previous PUI runs)

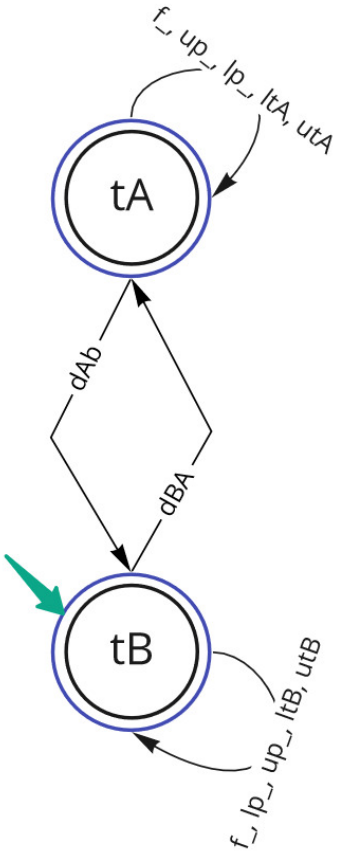
Logistics example - FDR

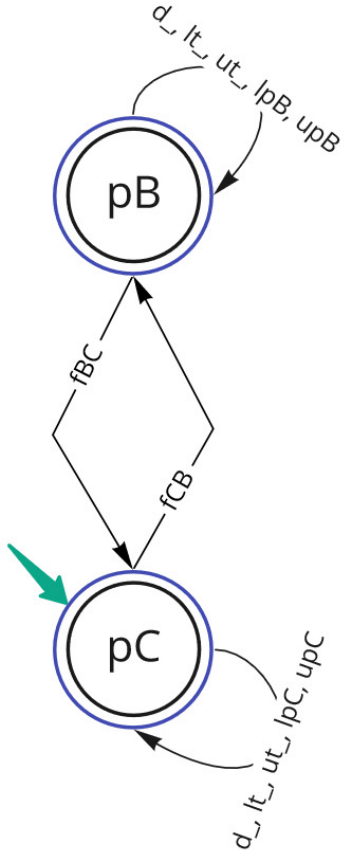
$V = \{g, t, p\}$ (representing gift, truck, plane)
$D_g = \{A, B, C, t, p\}$ $D_p = \{B, C\}$ $D_t = \{A, B\}$
$s_{init} = \{g = A, t = B, p = C\}$
$s_{goal} = \{g = C\}$

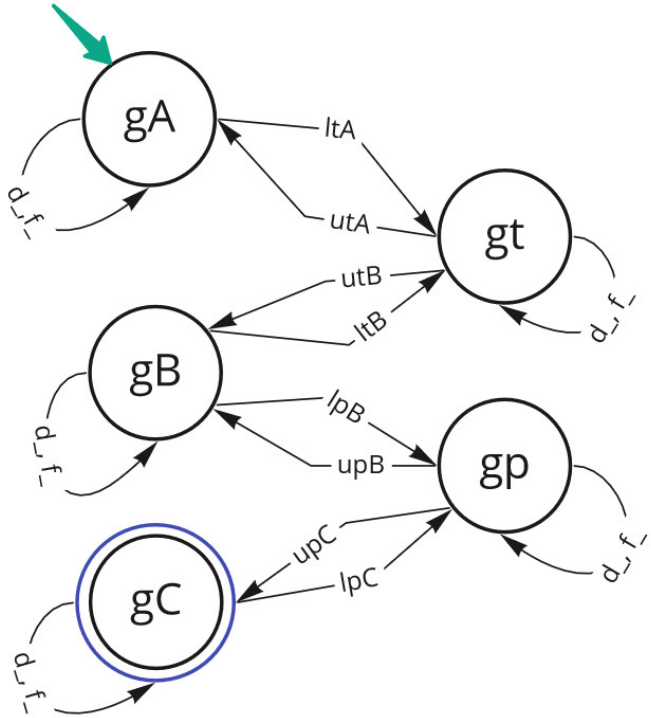
$O =$

	pre	eff	c
fBC	p=B	p=C	1
fCB	p=C	p=B	1
dAB	t=A	t=B	1
dBA	t=B	t=A	1
ltA	t=A, g=A	g=t	1
ltB	t=B, g=B	g=t	1
lpB	p=B, g=B	g=p	1
lpC	p=C, g=C	g=p	1
utA	g=t, t=A	g=A	1
utB	g=t, t=B	g=B	1
upB	g=p, p=B	g=B	1
upC	g=p, p=C	g=C	1

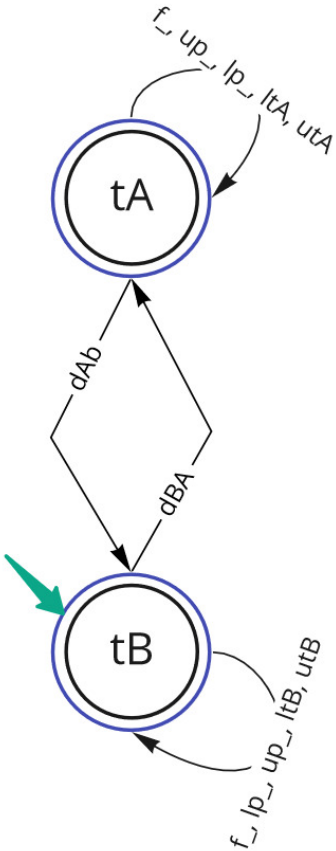
Merge & Shrink - Atomic projections

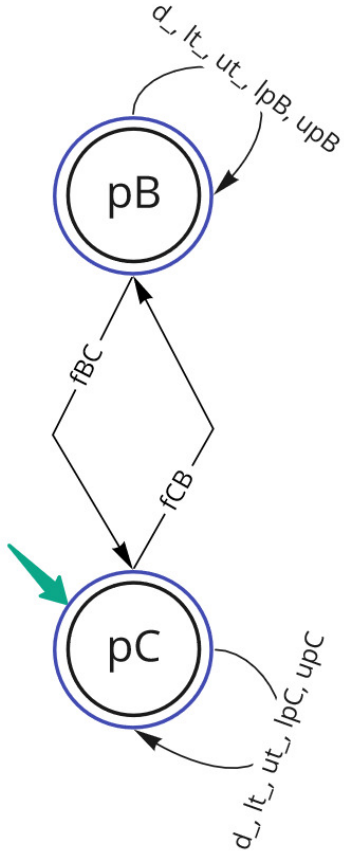


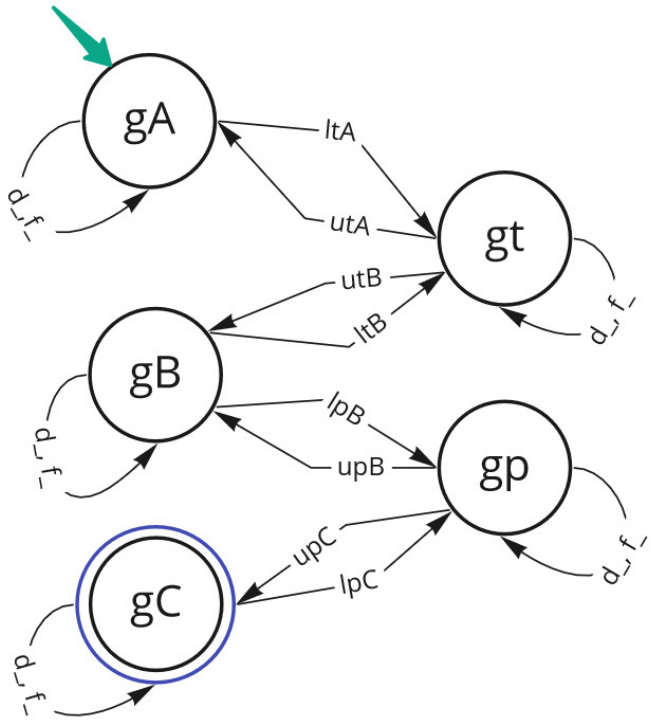




Merge & Shrink - Atomic projections



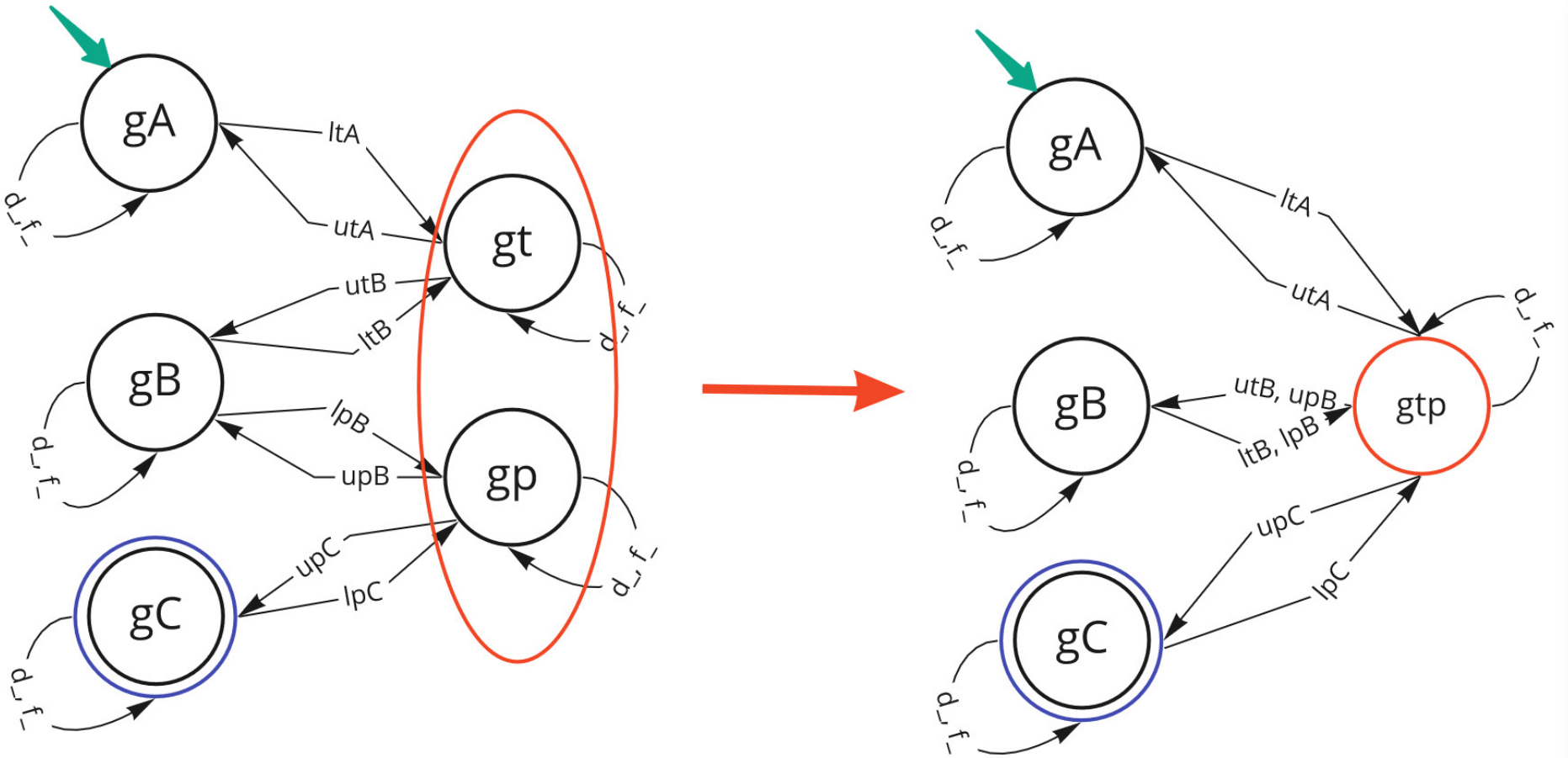




Let's **merge** second and third projection.

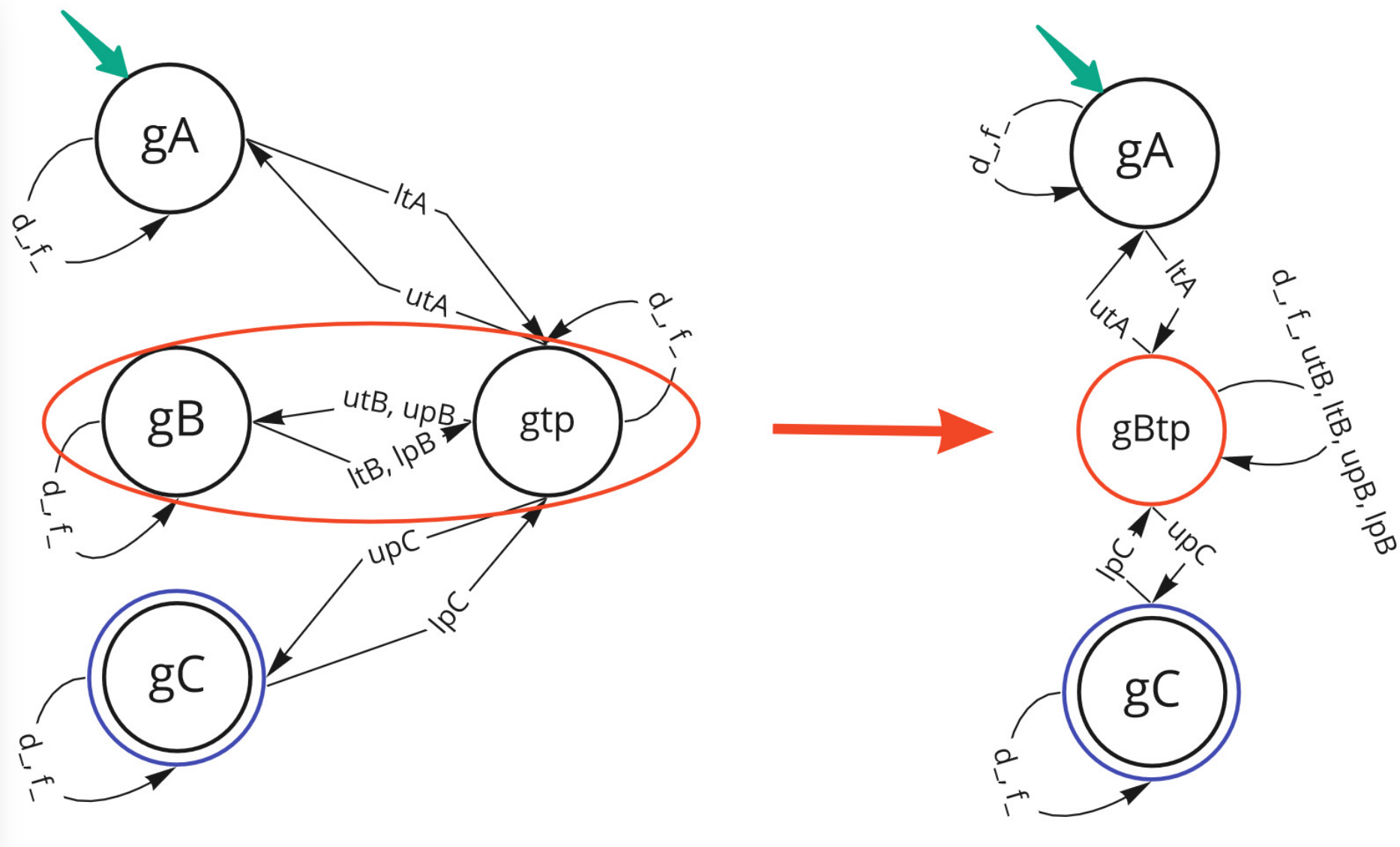
Merge & **Shrink**

That would lead to 10 states...little too many.
Let's **shrink** the third projection.



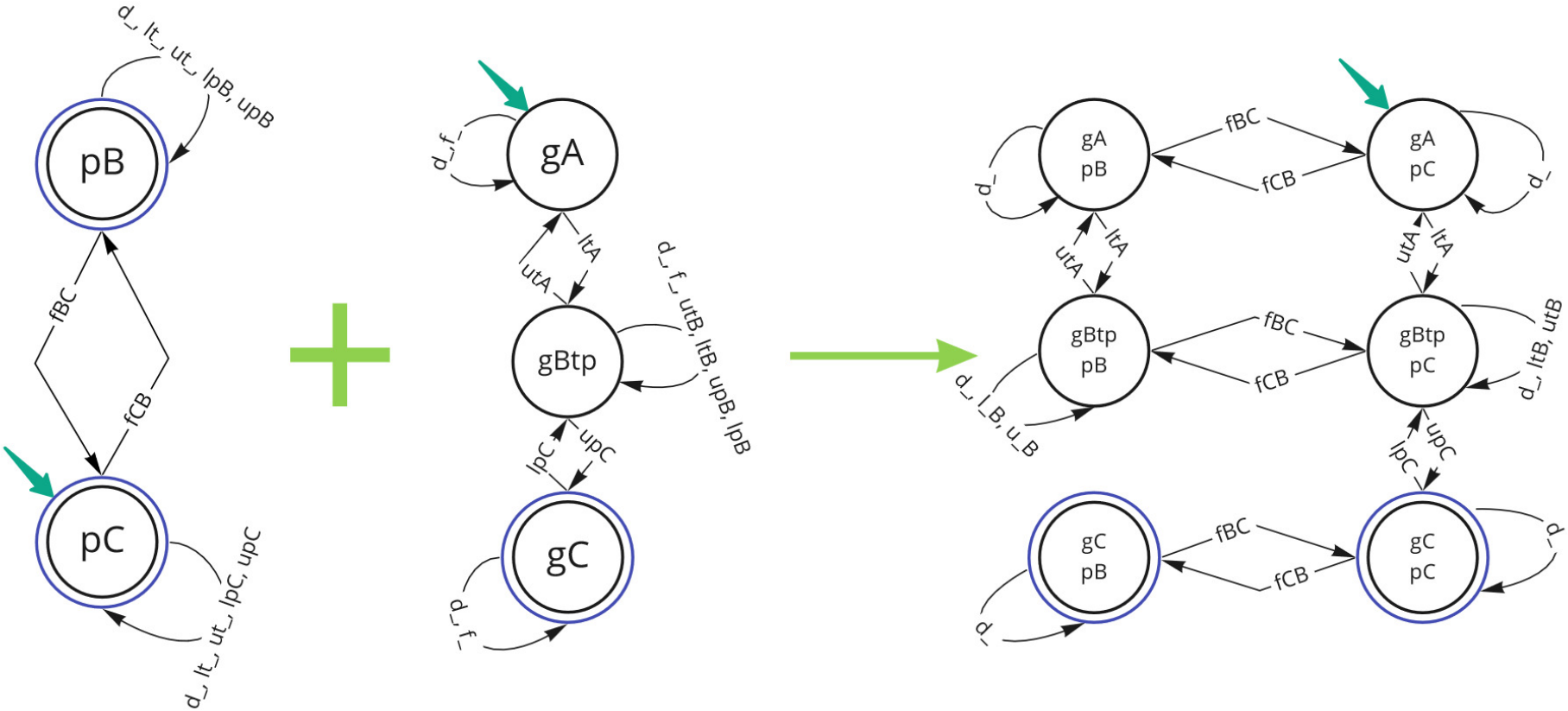
Merge & **Shrink**

That's still 8 states...let's shrink more!



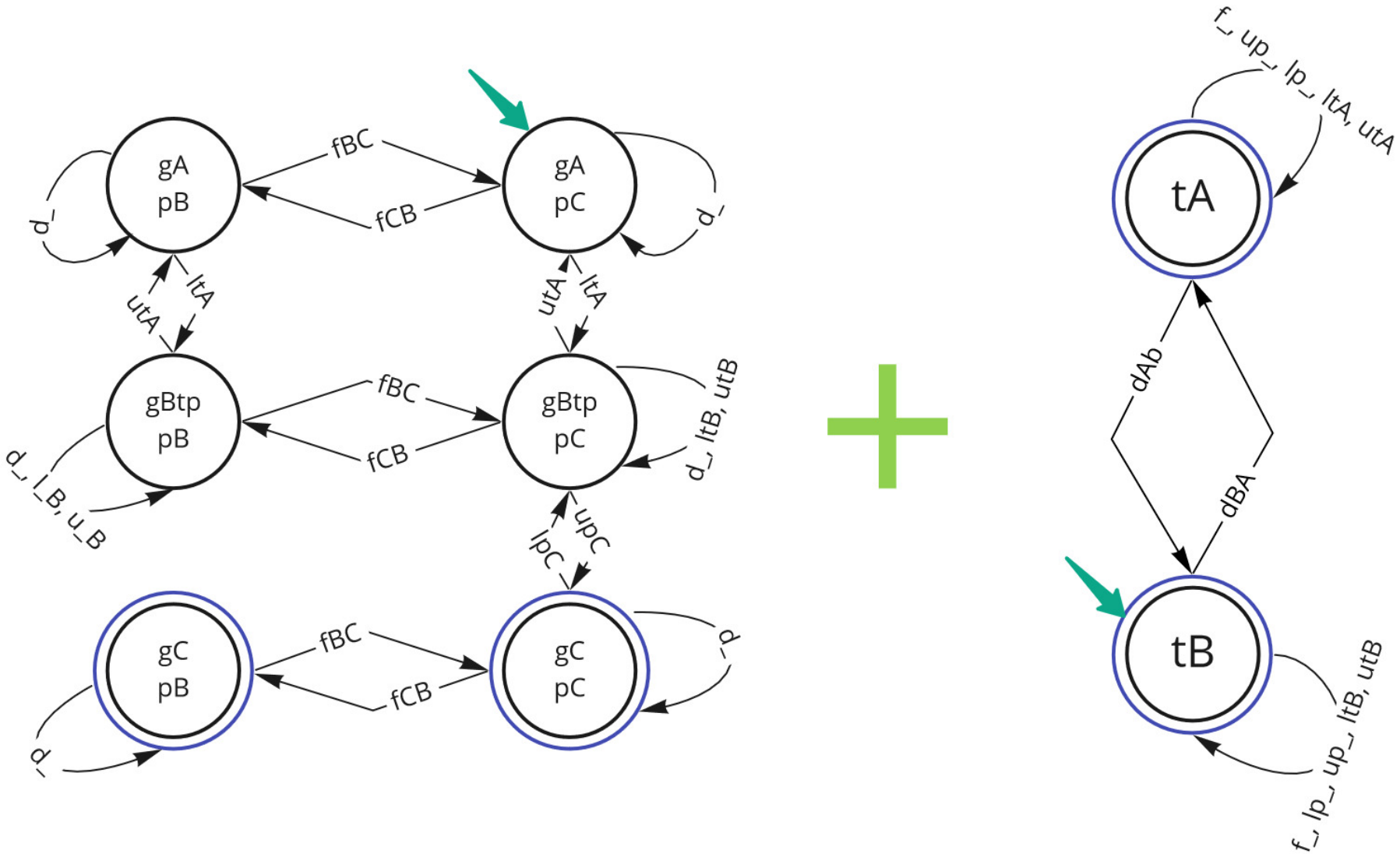
Merge & Shrink

This gives us 6 states. Let's create the synchronized product.



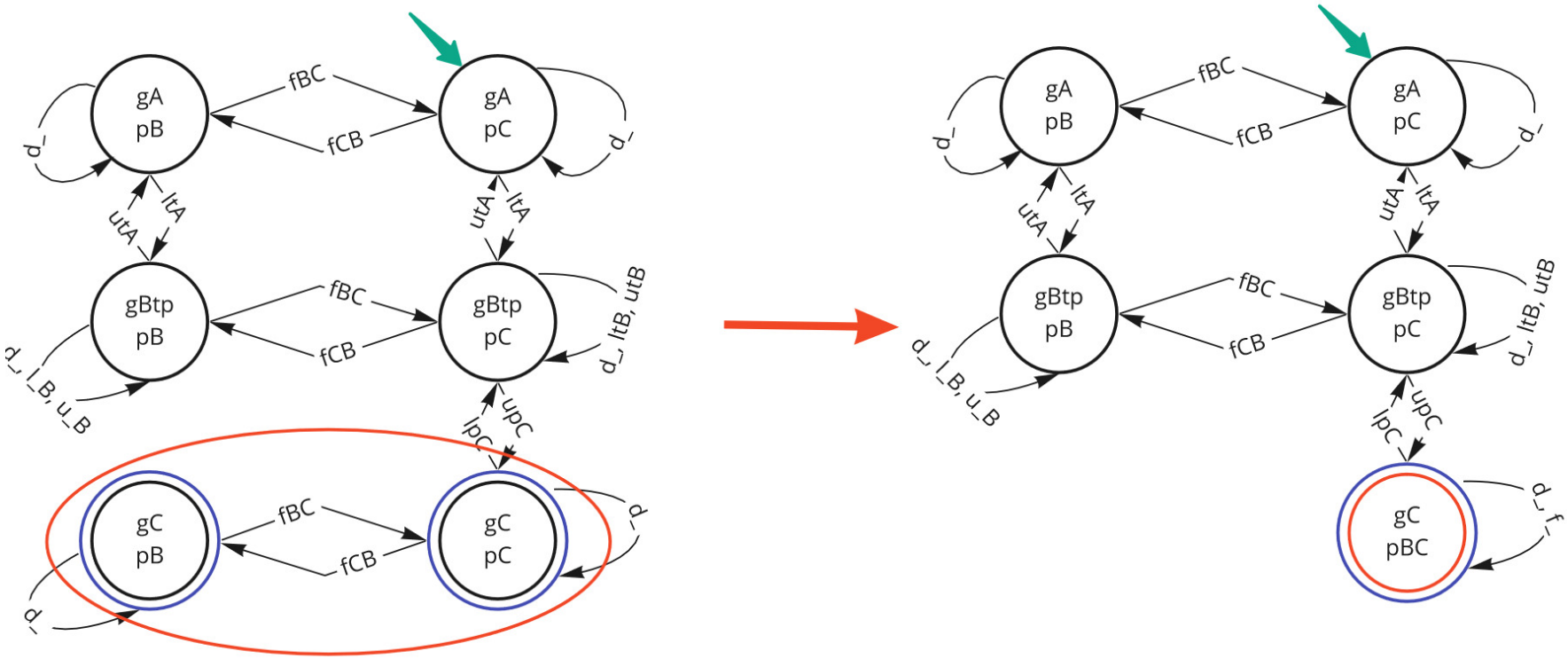
Merge & Shrink

Now we have only two projections to merge but the new one is too big.



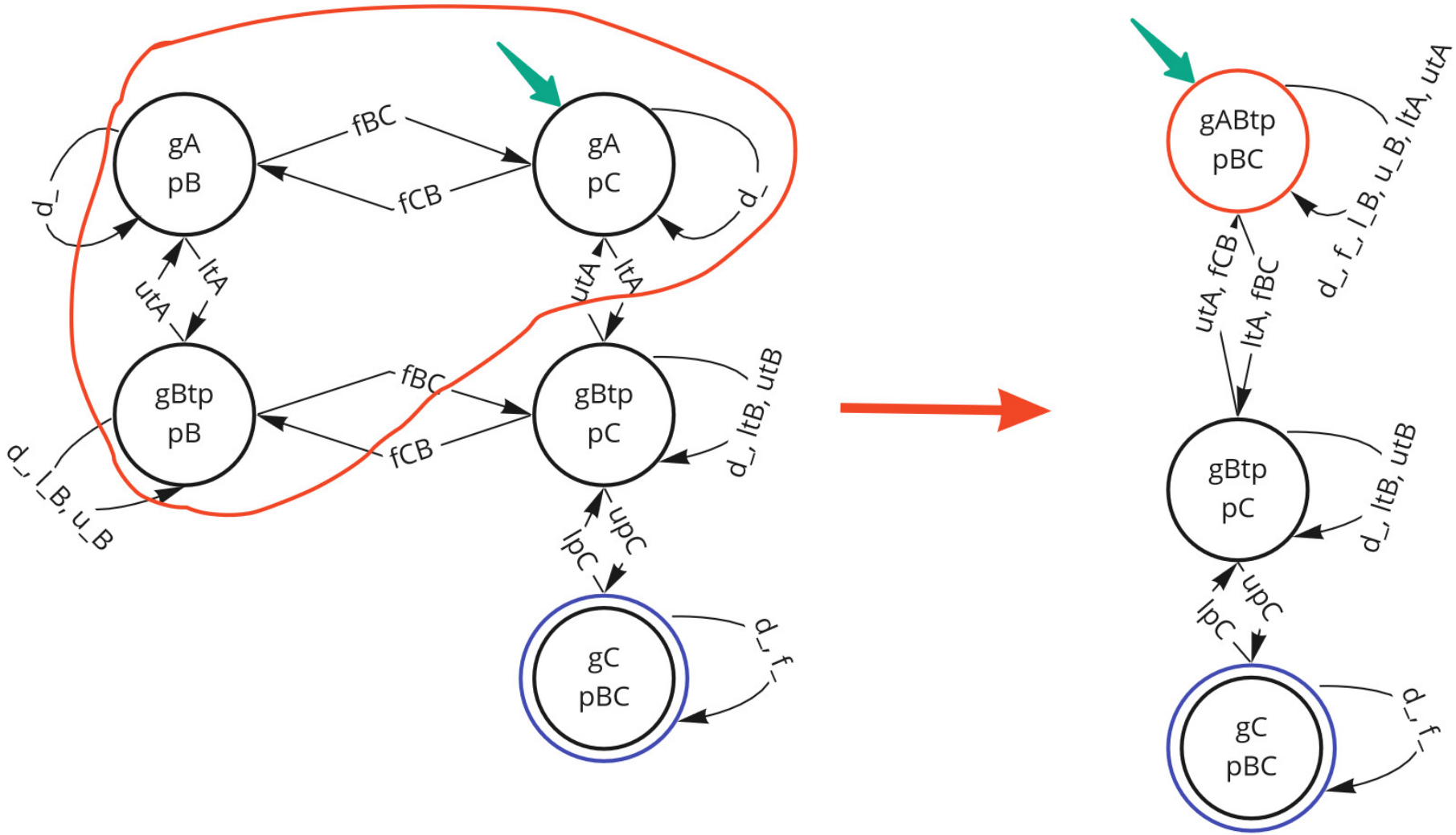
Merge & **Shrink**

Let's shrink it down.



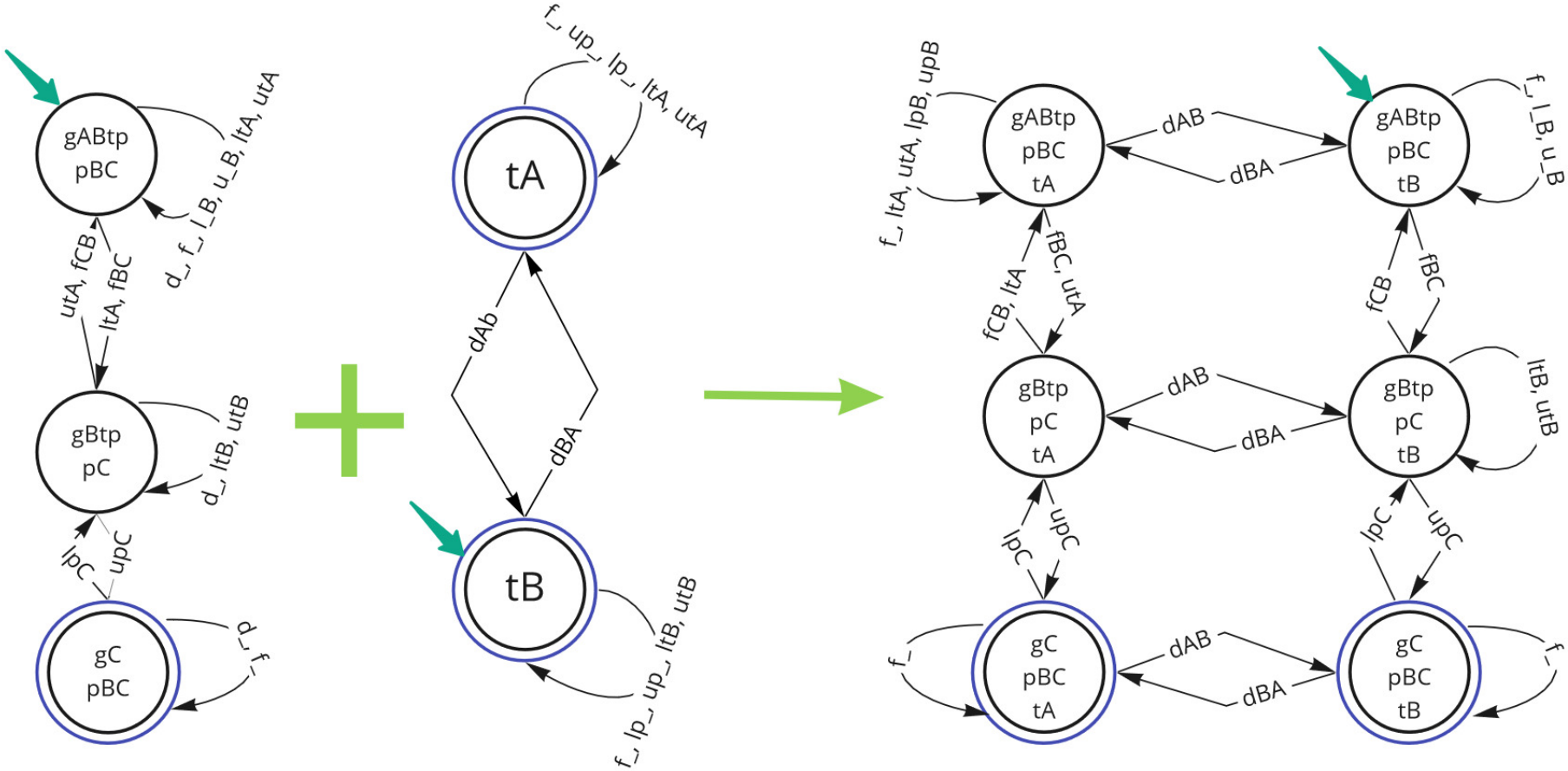
Merge & **Shrink**

Once more...



Merge & Shrink

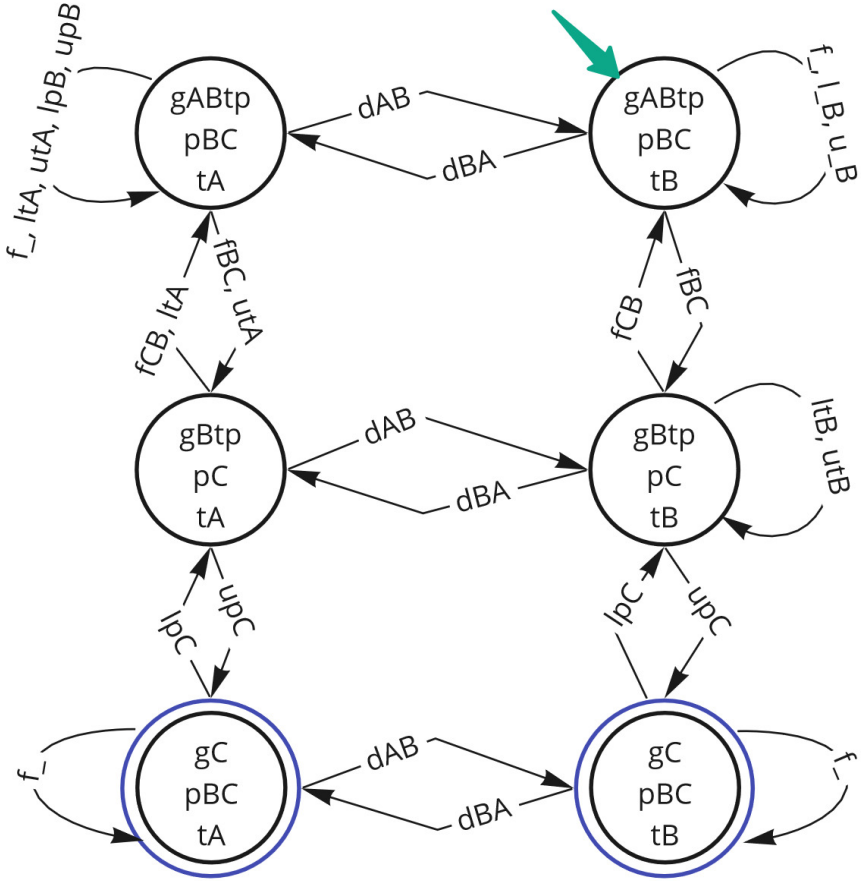
Now we can **merge** them and we have only one final abstraction.



Merge & Shrink

Now we have **one** abstraction we can use to compute the heuristic. Let's assume all operator costs are 1.

$h^{M\&S}(s_{init}) = 2$



The End


MADE IT THROUGH
HALF THE PLANNING COURSE
THERE'S STILL
THE OTHER HALF
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