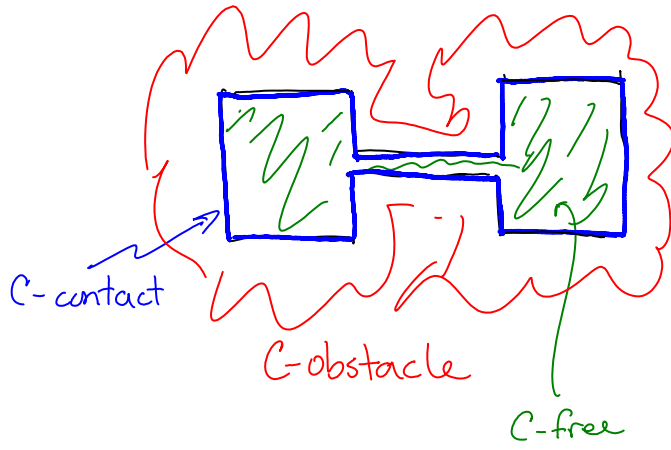


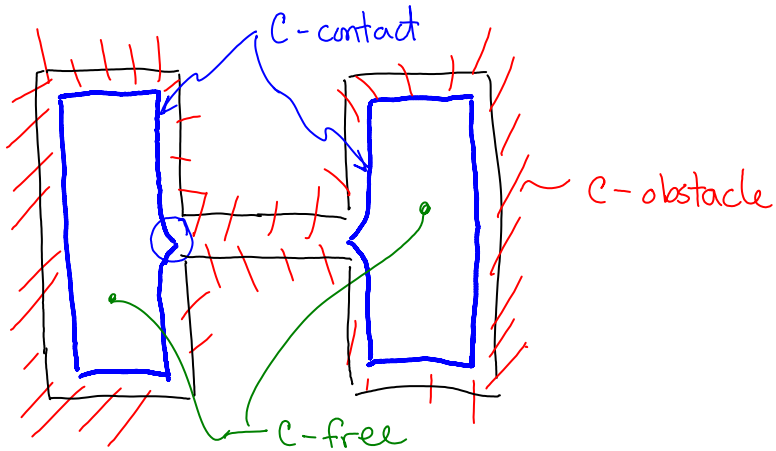
Solution: C-space

Wednesday, February 20, 2008
3:15 PM

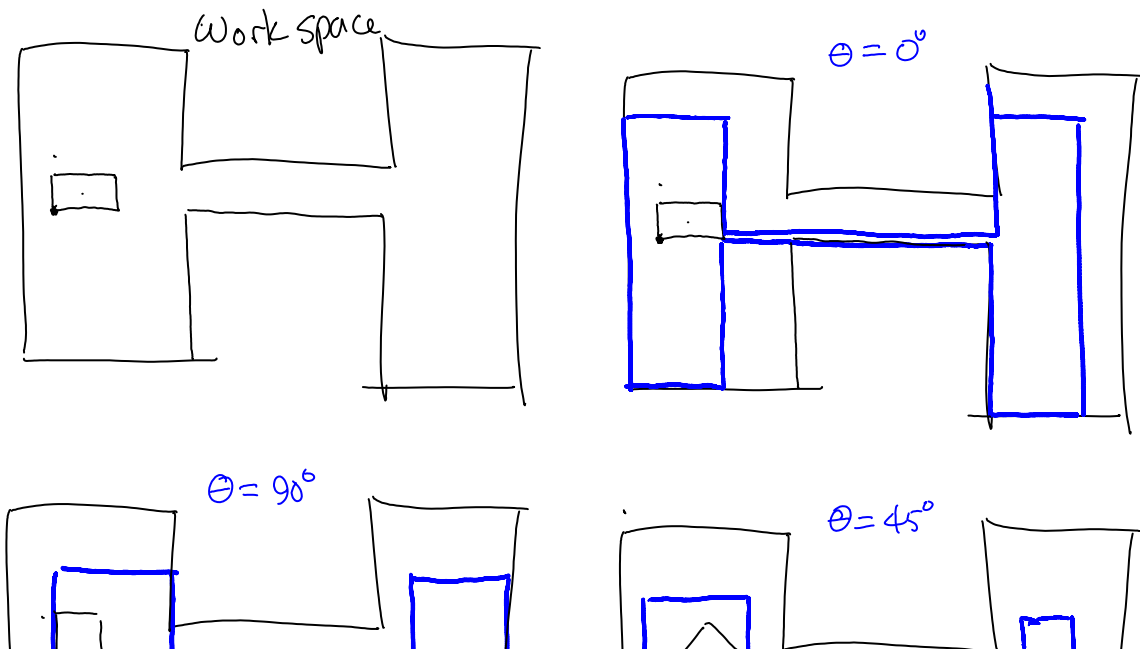
① $C\text{-space} = \mathbb{R}^2$

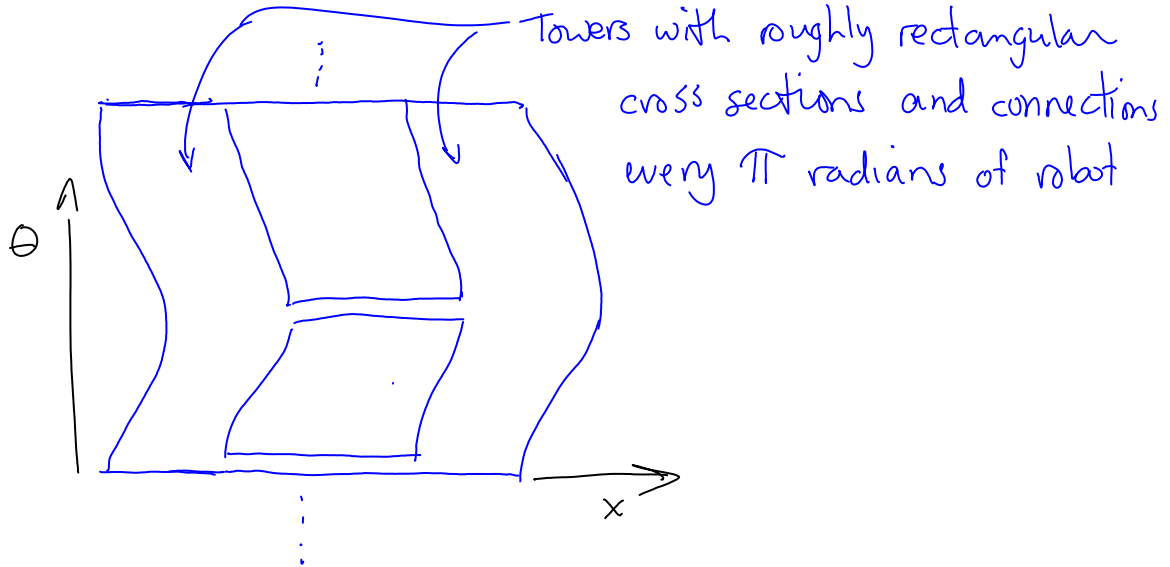
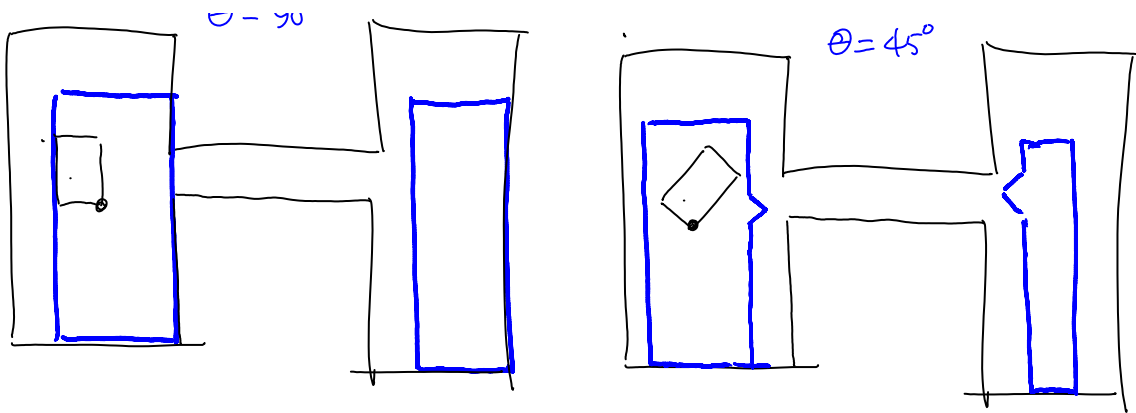


② Note that C-free & C-obstacle have two components.



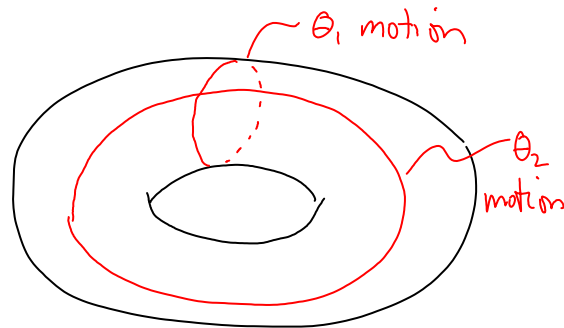
③



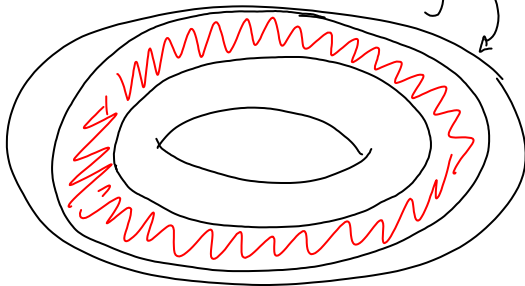


①

C-space is a torus



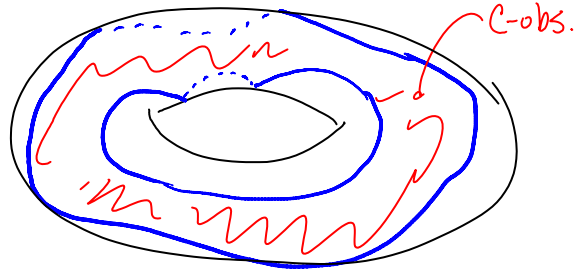
Consider link 1 only



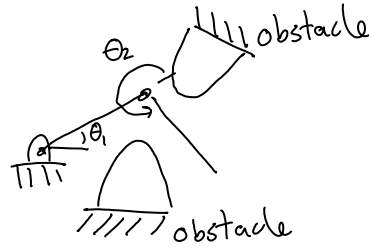
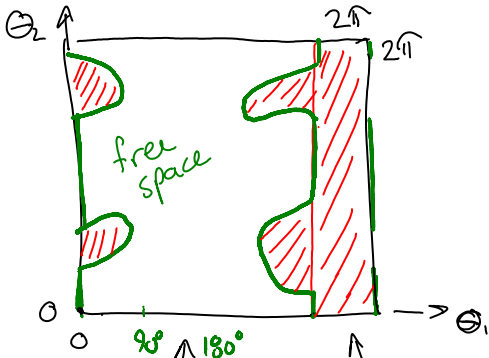
$$\theta_1 \text{ is blocked } \Rightarrow \theta_{1,\min} \leq \theta_1 \leq \theta_{1,\max}$$

but more of torus is removed by collisions of link 2.

More complex
C-obstacle



Flatten the Torus ↘



Observations:

Some portion of θ_1 is invalid for all θ_2

Some portion of θ_1 allows all θ_2

Some portions of θ_1 allow two ranges of θ_2

" " " " " one range " "

C-free has 1 component

C-contact has 2 components