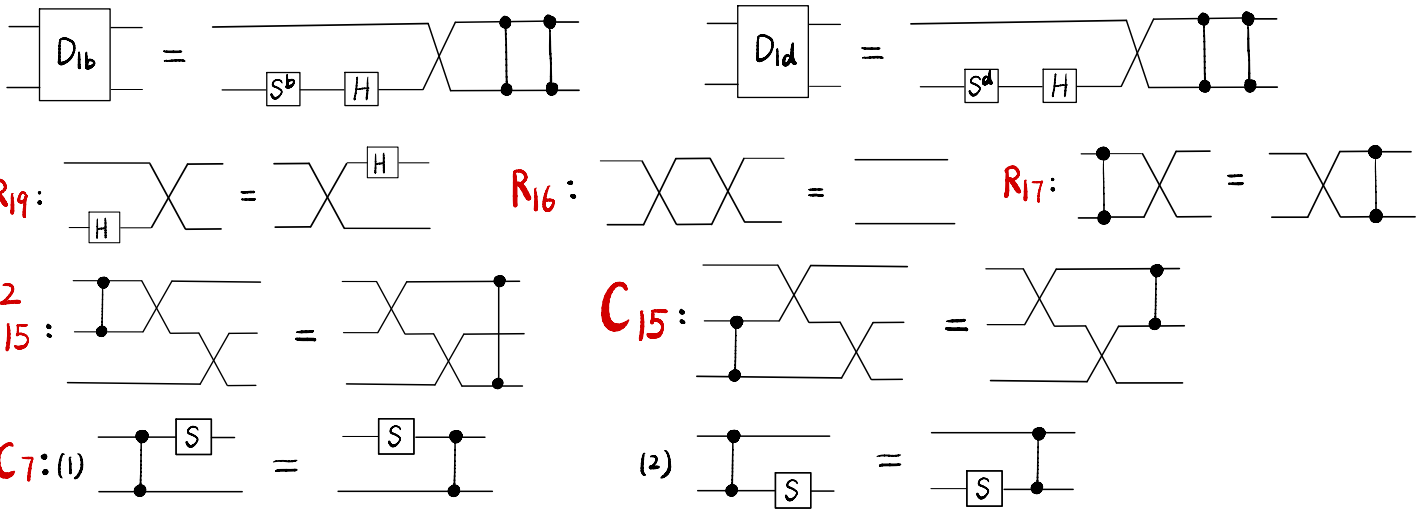


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Lem 6 Def 1-2, Def 5, Def 7, C2-3, C6-7, $R_{10}$, $R_{16}$, $R_{17}$, $R_{18}$, $R_{19}$, $R_{43}$, $C_{13}$ & $C_{15}$ imply

10. (f) $D_{1b}$ $D_{1d}$ = $D_{1,b+2}$ $D_{1,d+2}$ H H H S H H H H S H Z , $b, d \in \mathbb{Z}_3$.

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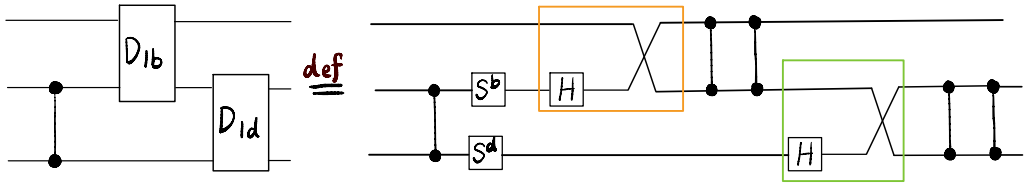
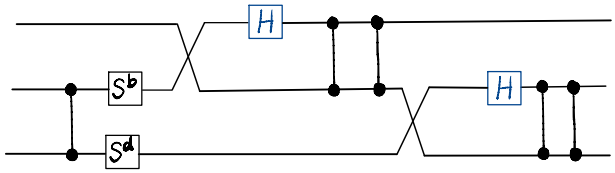
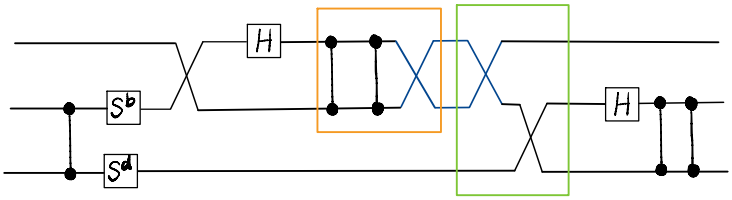
Proof: 10. (f). LHS :=



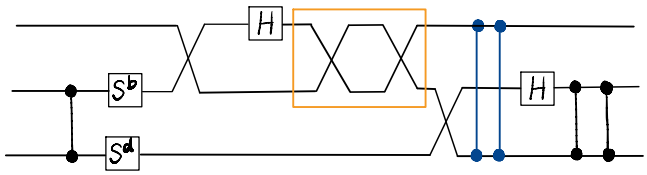

$R_{19}$



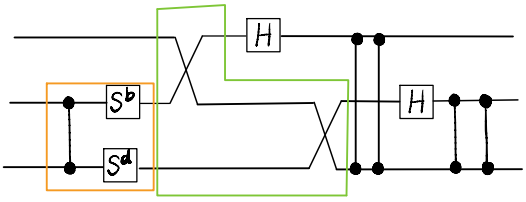

$R_{16}$



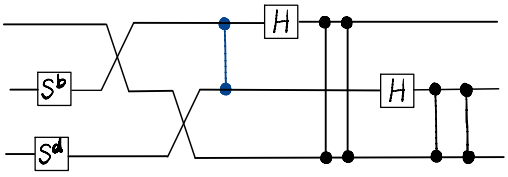

$R_{17}$
$C_{15}^2$

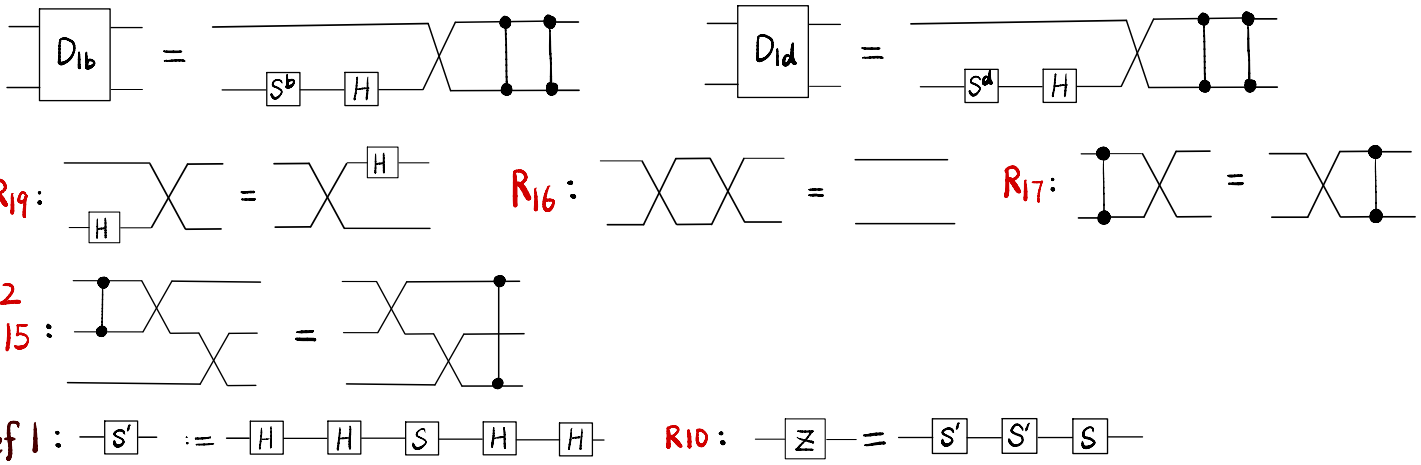



$R_{16}$



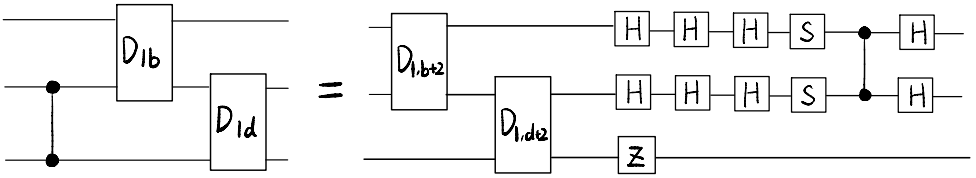

$C_7$
$C_{15}$






Lem 6

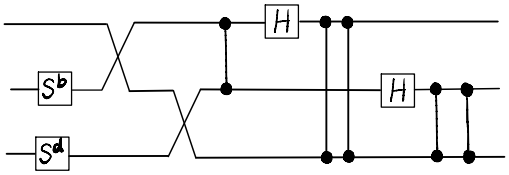
10. (f)



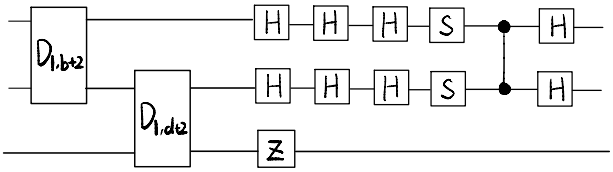

, $b, d \in \mathbb{Z}_3$.

Proof cont:

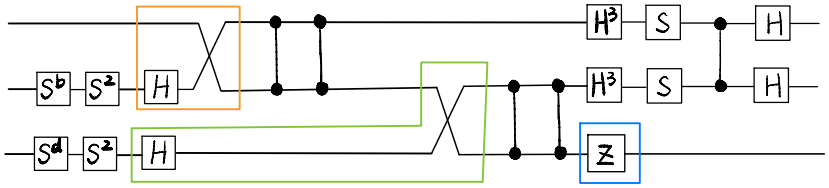
10. (f). LHS =



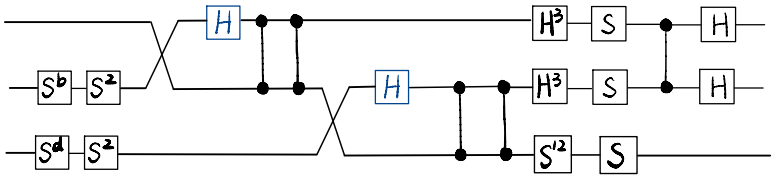

10. (f). RHS :=



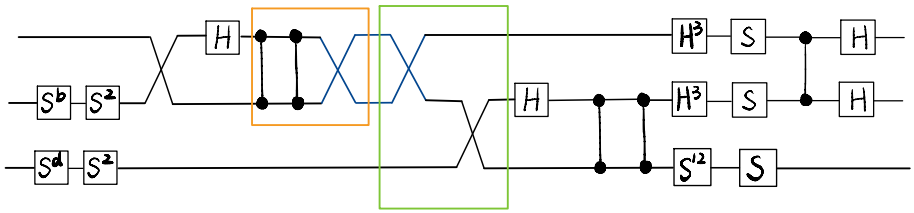

def =



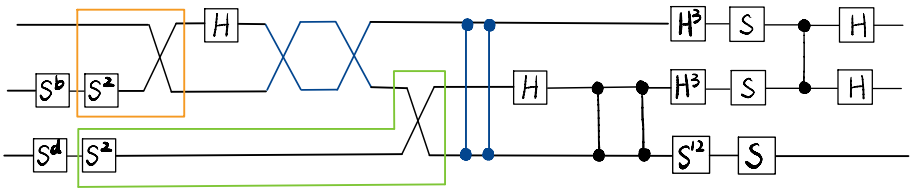

R10, R9 / Def 1 =

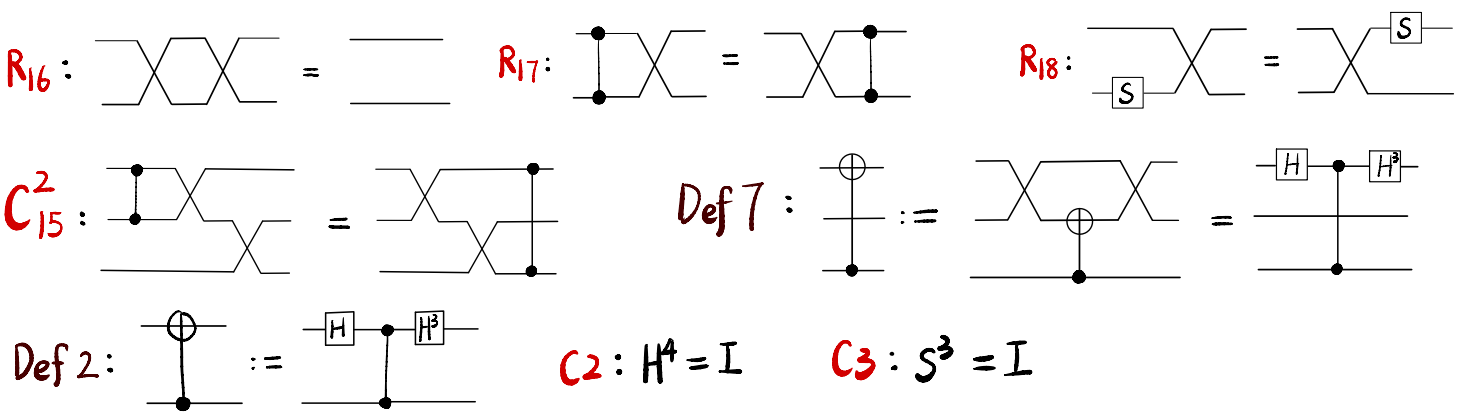



R16 =




R17 / $C_{15}^2$ =



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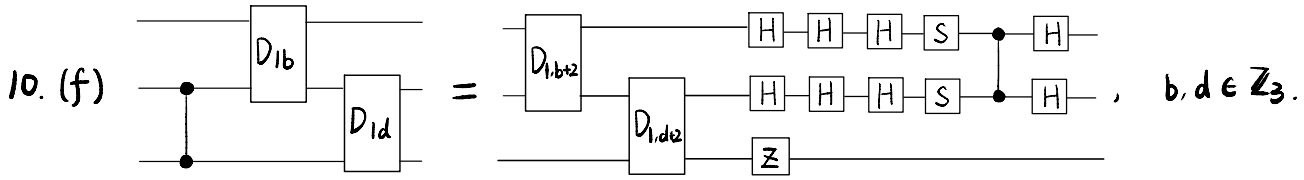
Lem 6

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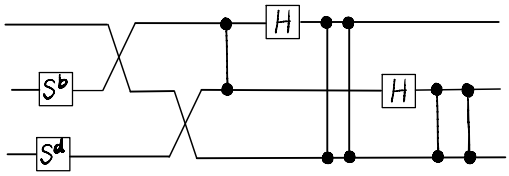
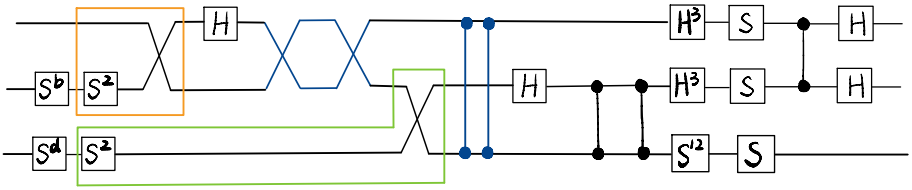
Proof cont :

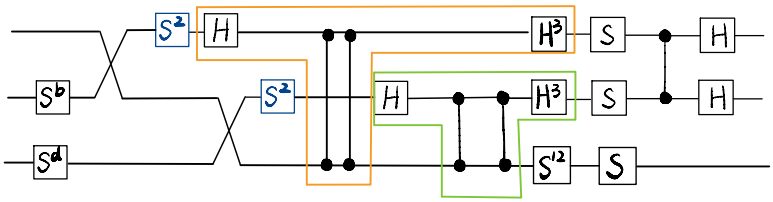
10.(f).LHS =



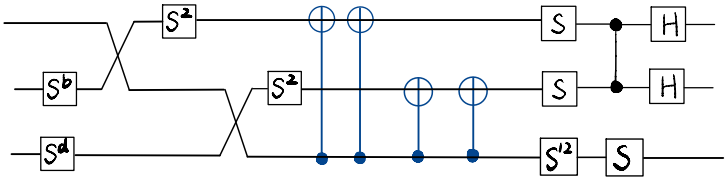

10.(f).RHS =



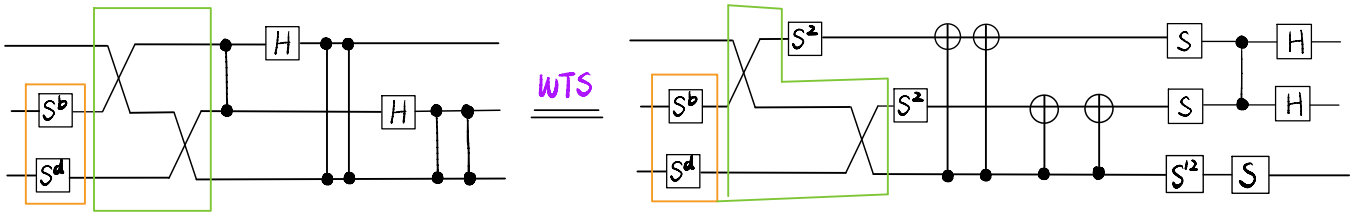

R16 / R18



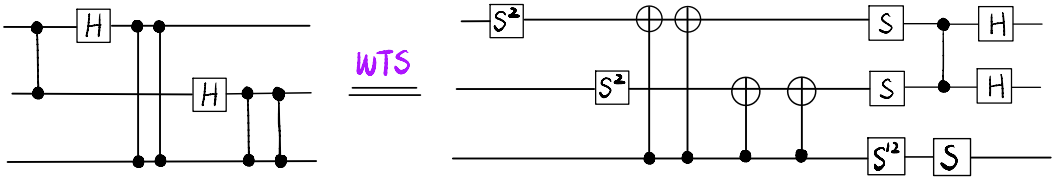

C2, Def 2 / Def 7



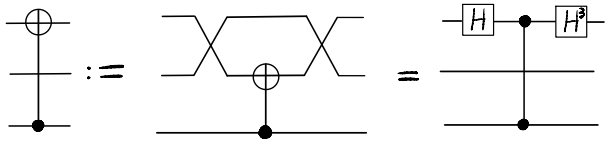

Hence



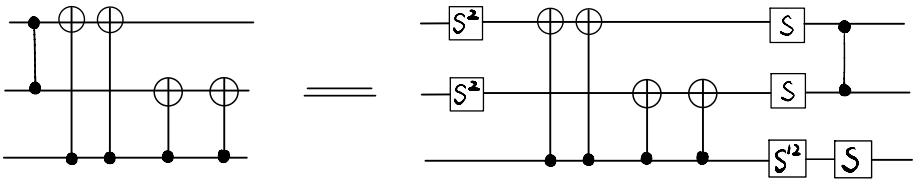

C3 ||| R16



C2 : $H^4 = I$ Def 7 :




$R_{43}$ :

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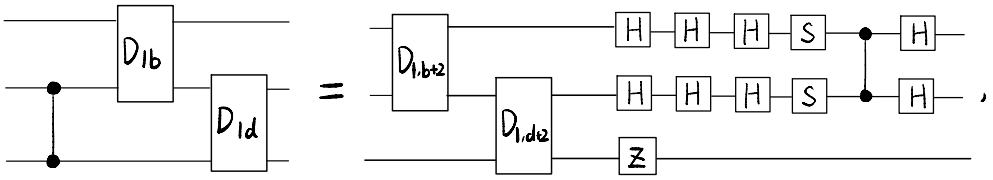
Lem 6

10. (f)




, $b, d \in \mathbb{Z}_3$.

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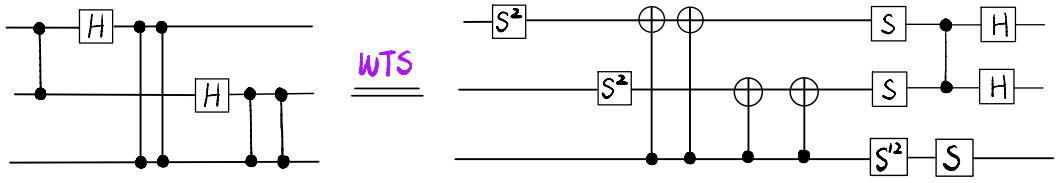
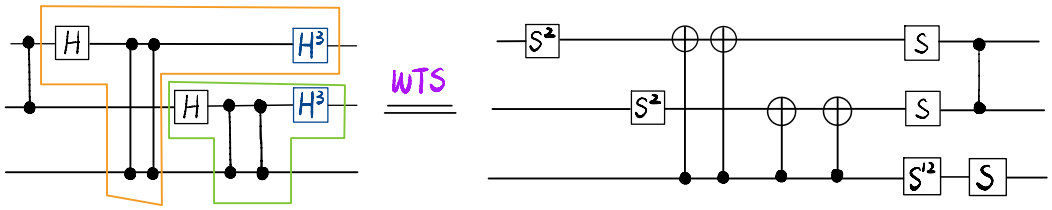
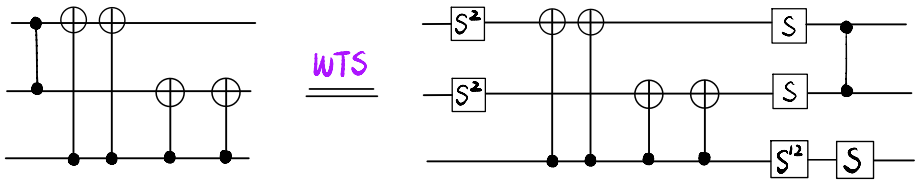
Proof cont :



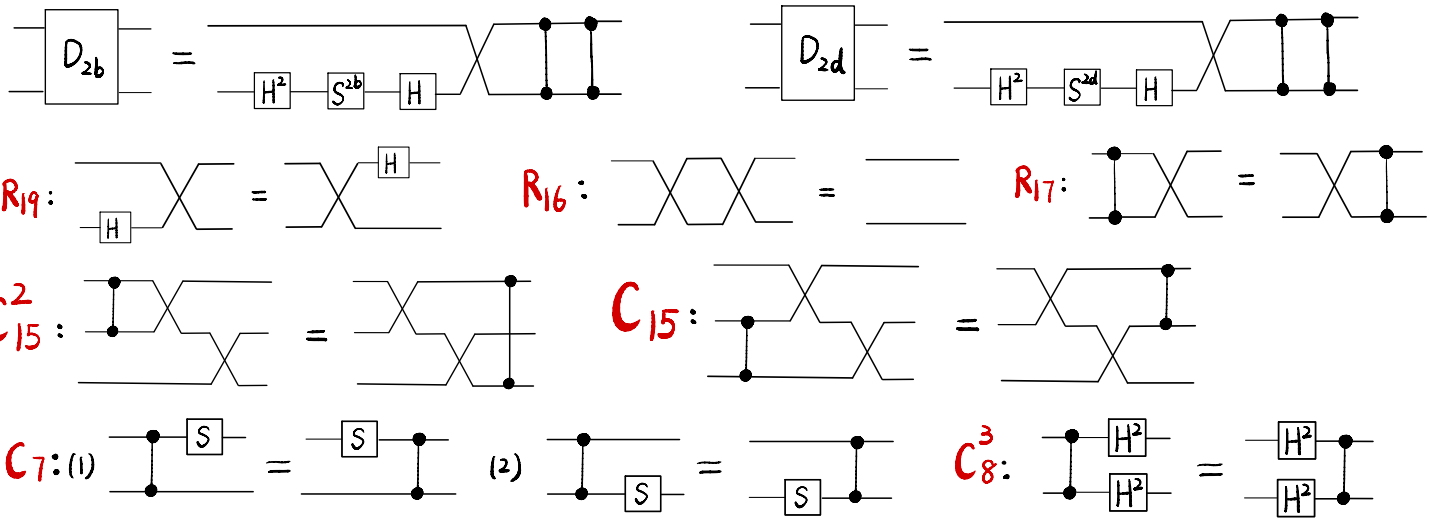

$C_2$ |||




||| Def 7




By $R_{43}$, this completes the proof.

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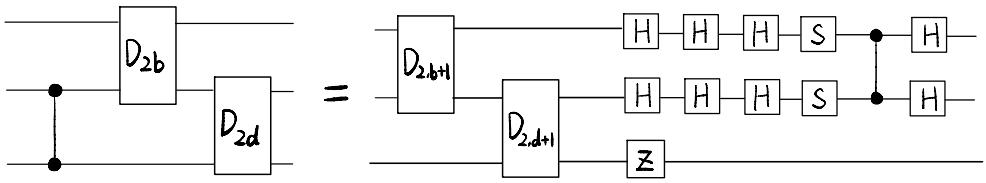
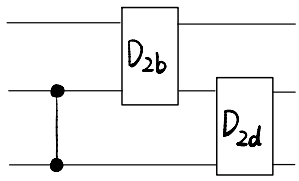
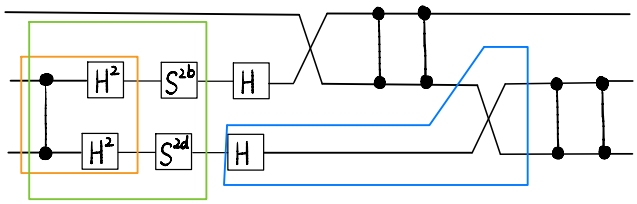
**Lem 7** Def 1–2, Def 5, Def 7, C2–3, C6–8, $R_{10}$, $R_{16}$, $R_{17}$, $R_{18}$, $R_{19}$, $R_{43}$, $C_{13}$ & $C_{15}$ imply

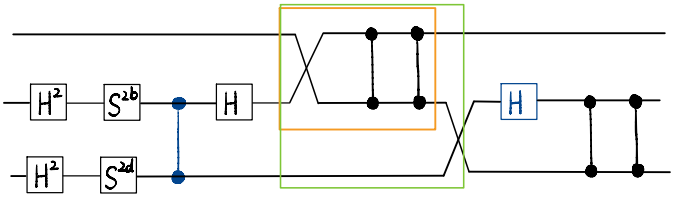
10. (g) 

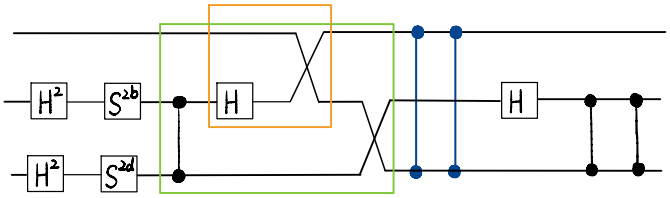
, $b, d \in \mathbb{Z}_3$.

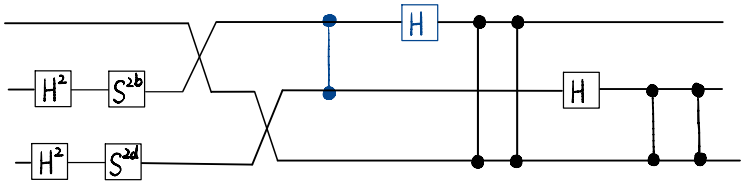
---

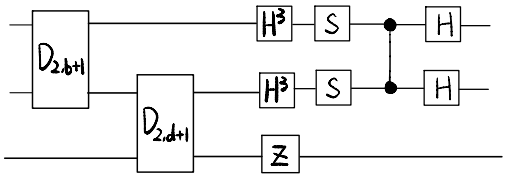
Proof: 10. (g). LHS := 

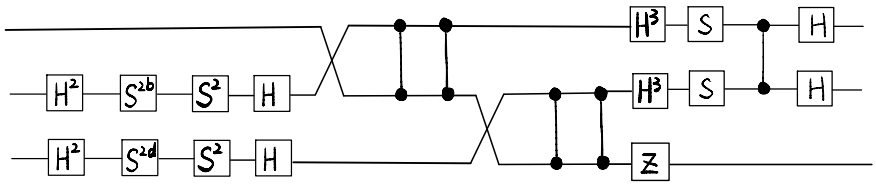
def 


$C_7, C_8^3$ / $R_{19}$ 


$C_{15}^2$ / $R_{17}$ 

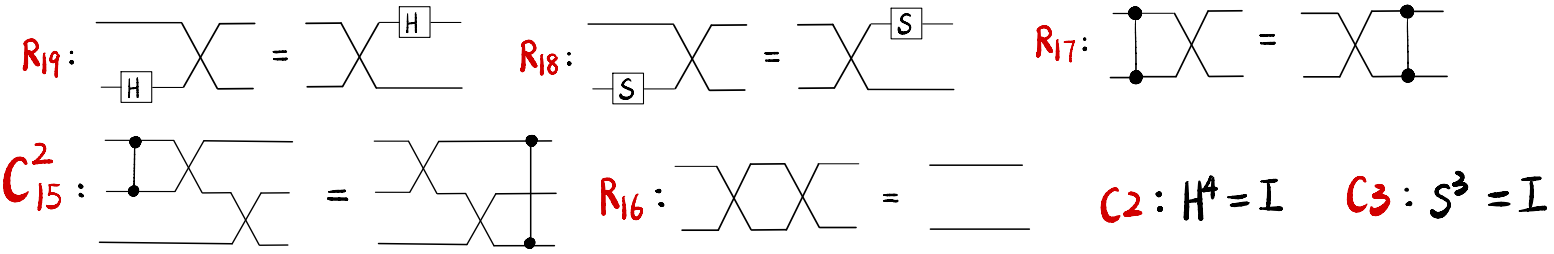

$C_{15}$ / $R_{19}$ 


10. (g). RHS := 

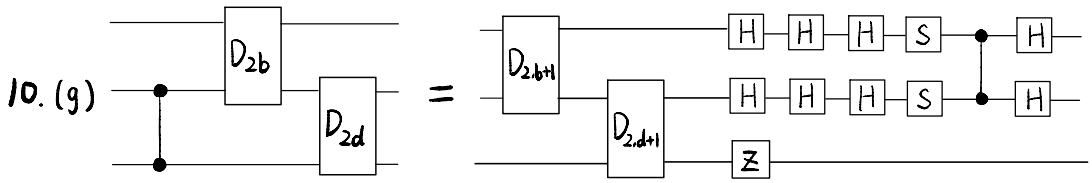

def 


$2(b+1) = 2b+2$

$2(d+1) = 2d+2$



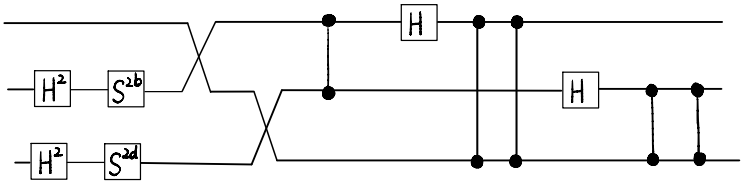

Lem 7



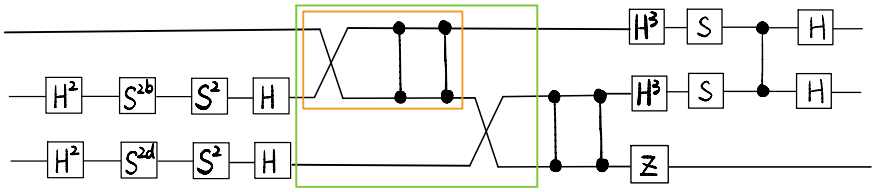

, $b, d \in \mathbb{Z}_3$.

Proof cont :

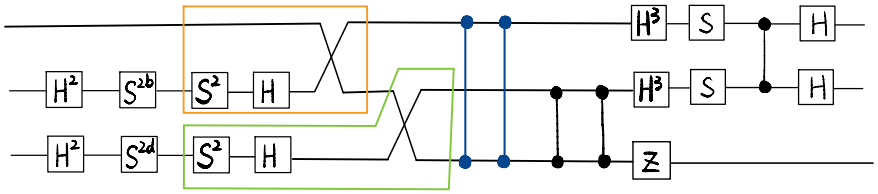
10. (g). LHS =



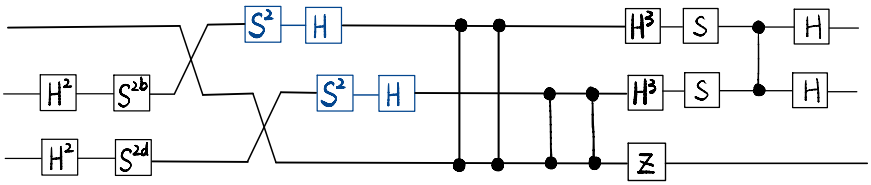

10. (g). RHS =



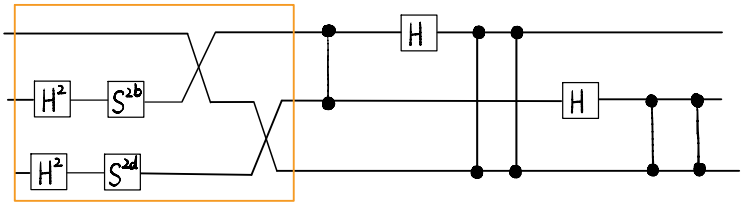

$C_{15}^2$ / $R_{17}$



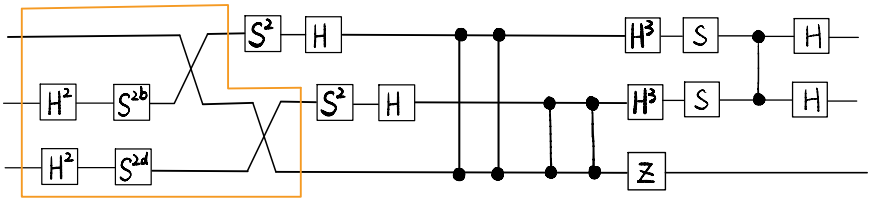

$R_{18}$ / $R_{19}$



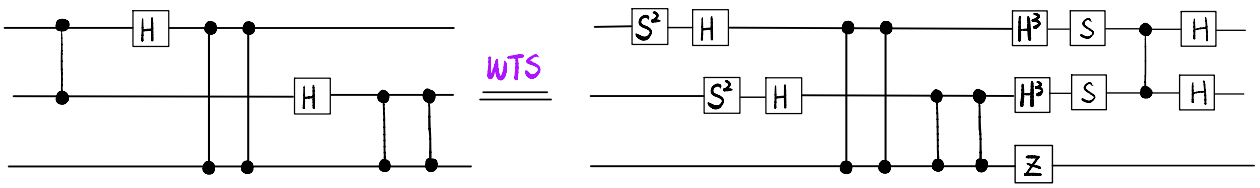

Hence

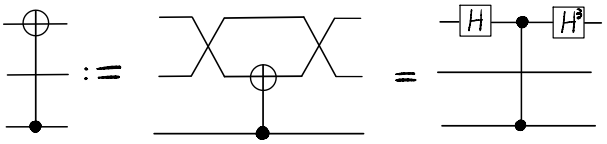


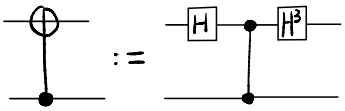

WTS




$C_2\, C_3$ / $R_{16}$

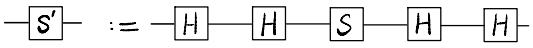


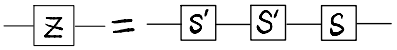
Def 7 : 

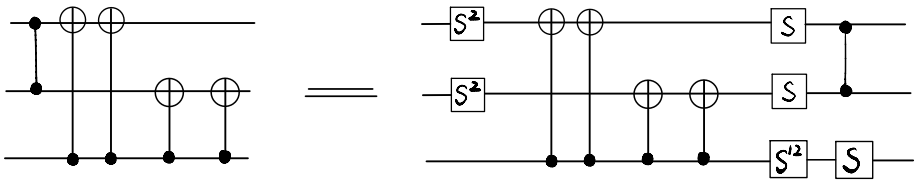
Def 2 : 

C2 : $H^4 = I$

C3 : $S^3 = I$

Def 1 : 

R10 : 

R43 : 

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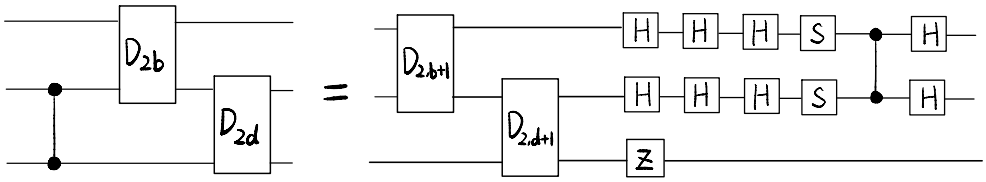
Lem 7

10. (g) 

, $b, d \in \mathbb{Z}_3$.

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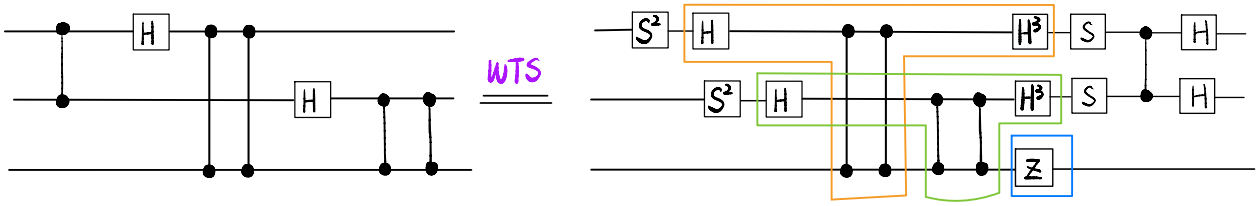
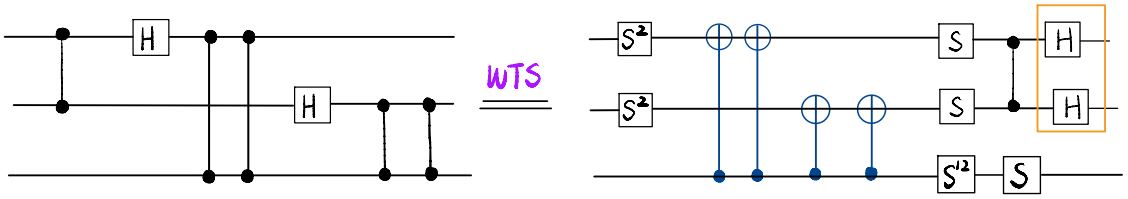
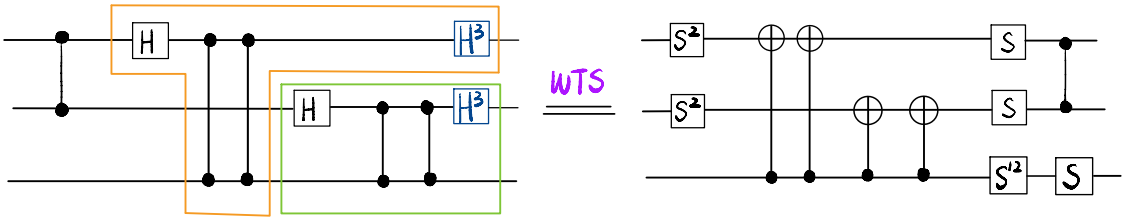
Proof cont : 

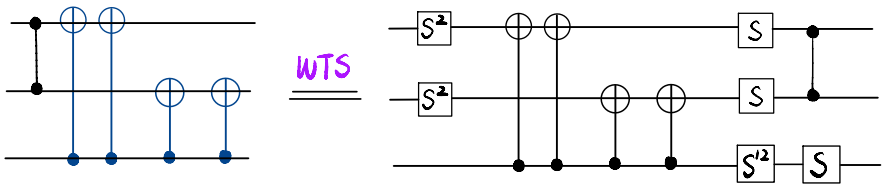
R10 ||| Def 1 , Def 2, Def 7



C2 |||



||| Def 2, Def 7



By R43, this completes the proof.