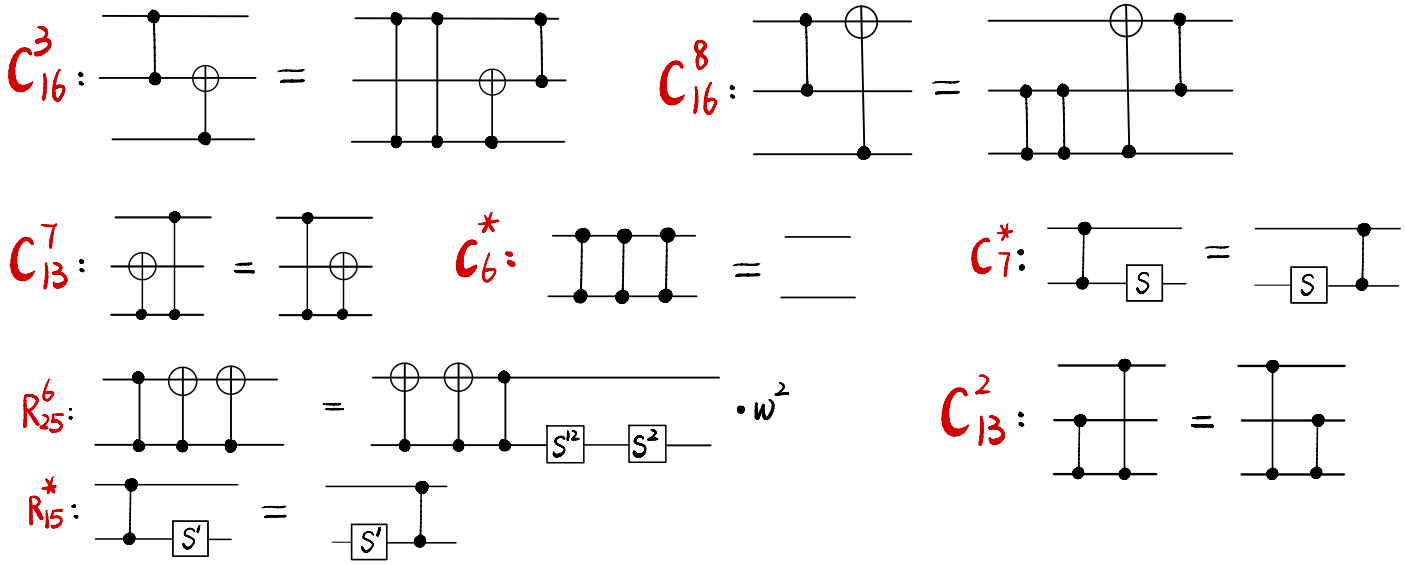
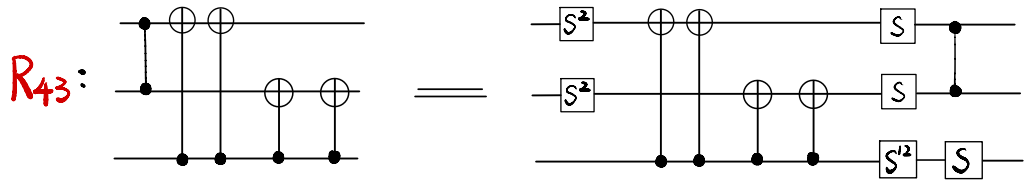
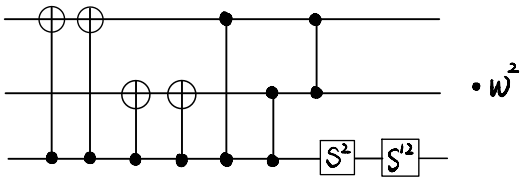
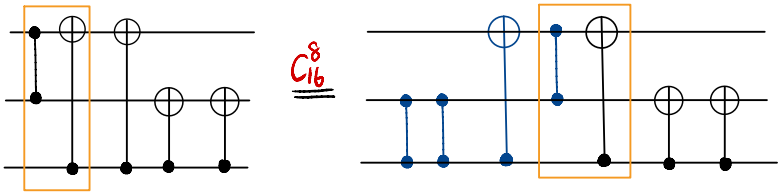


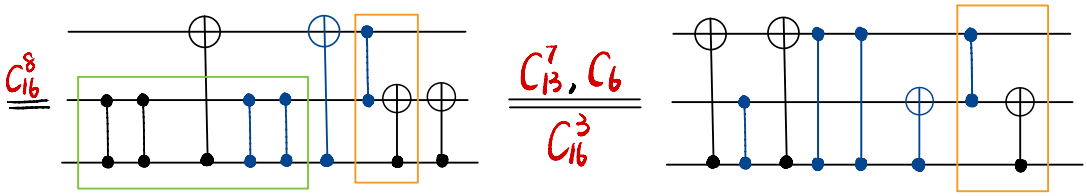
Lem M

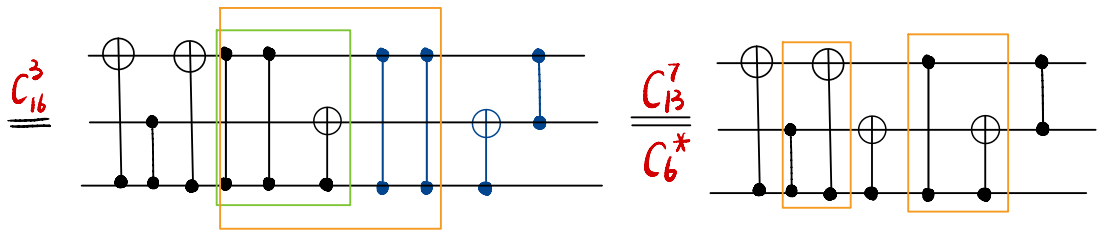


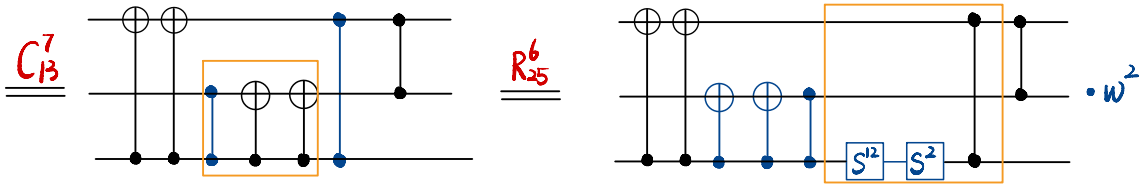
Proof cont.

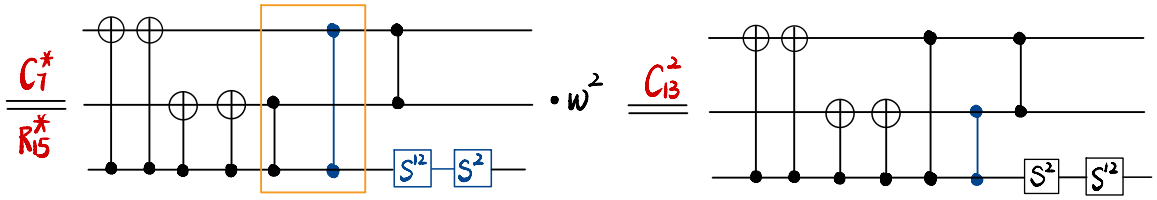
$R_{43}.RHS =$  $\cdot w^2$

$R_{43}.LHS :=$ 

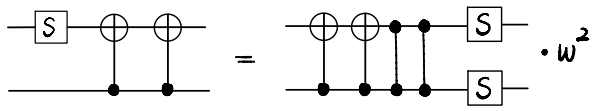


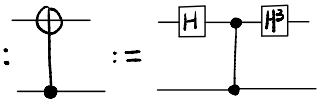






$=: R_{43}.RHS.$

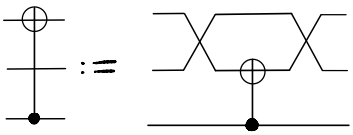
R_{23}^{q*}: 

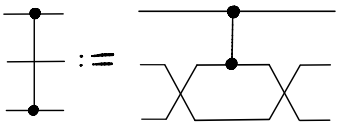
Def 2: 

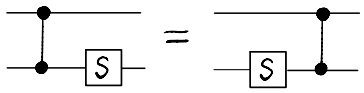
$C_1: w^3 = 1$

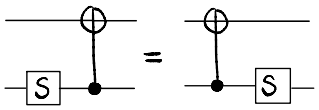
$C_3: S^3 = I$

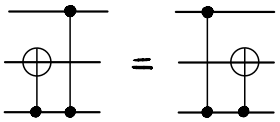
$C_5: SS' = S'S$

Def 7: 

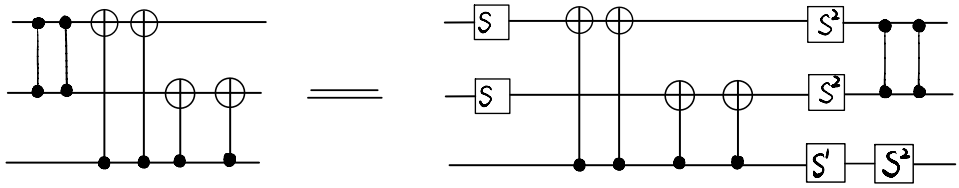
Def 5: 

C_7: 

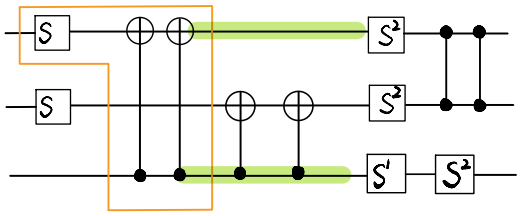
R_{24}: 

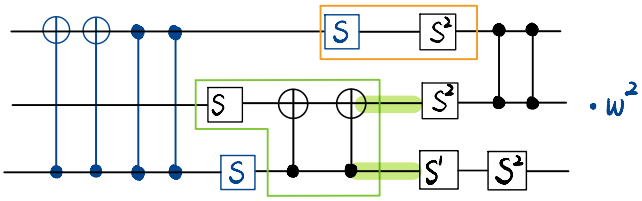
C_{13}^{7}: 

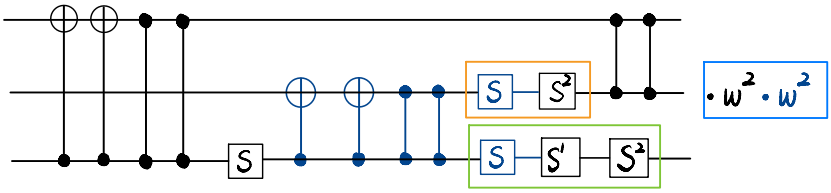
Lem N Def 2, Def 5, Def 7, $C_1, C_3, C_5, C_7, C_{13}, C_{16}, R_{23}^{*}, R_{25}^{*}$ & R_{24} imply

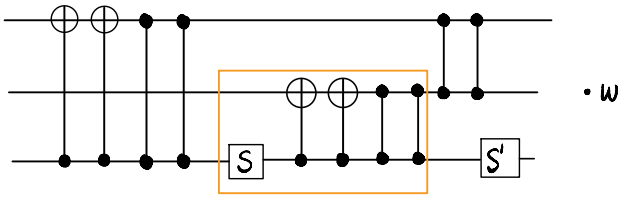
R_{44}: 

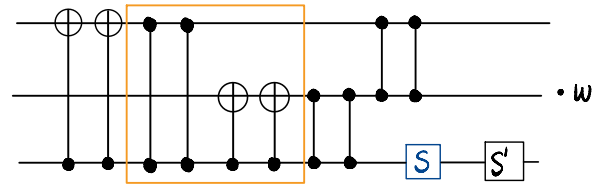
Proof:

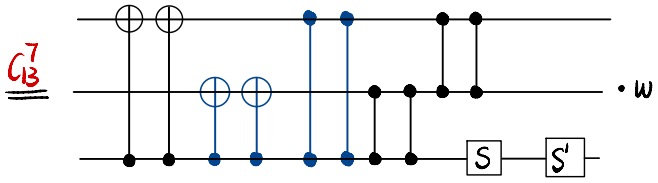
$R_{44}.RHS :=$ 

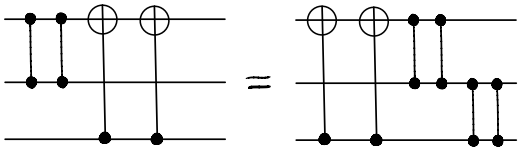
R_{23}^{q*} 

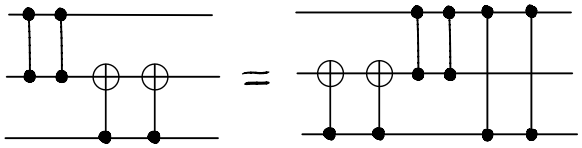
R_{23}^{q*} / C_3 

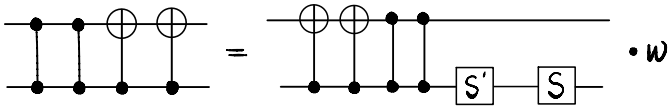
C_1, C_3 / C_5 

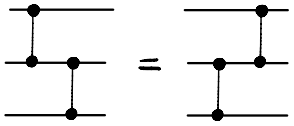
C_7 / R_{24} 

C_{13}^{7} 

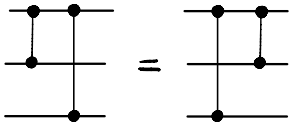
$C_{16}^{7'}$: 

$C_{16}^{2'}$: 

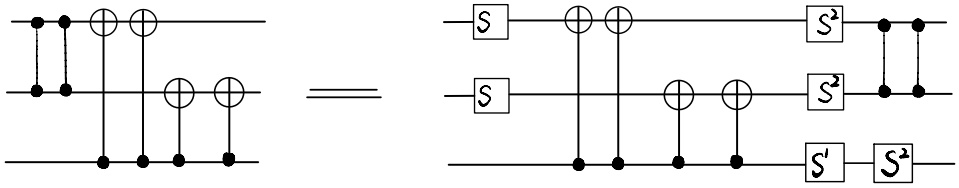
R_{25}^{7}: 

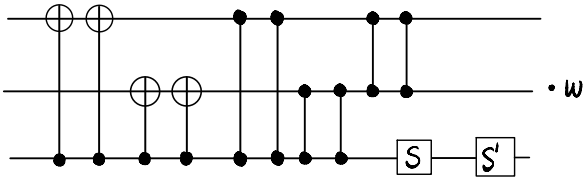
C_{13}: 

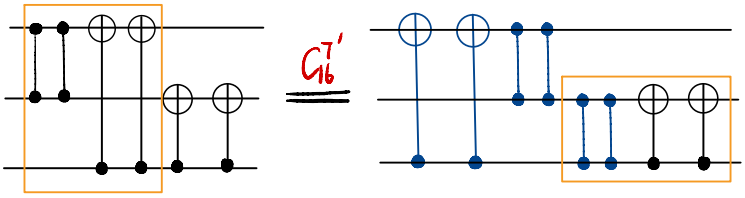
C_5 : $SS' = S'S$

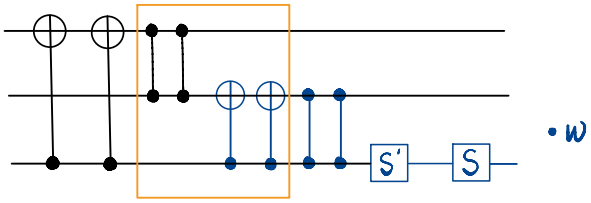
C_{13}^{1}: 

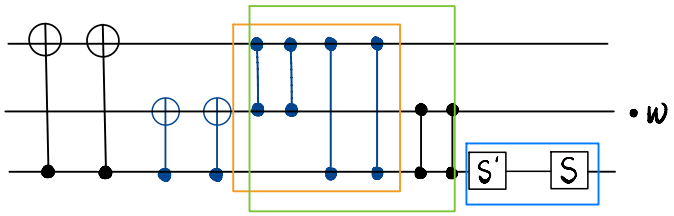
Lem N

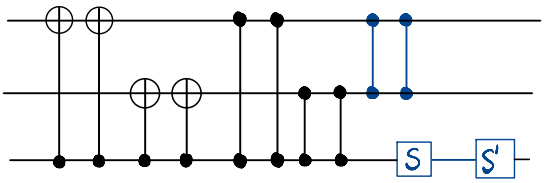
R_{44}: 

Proof cont. $R_{44}.RHS$ = 

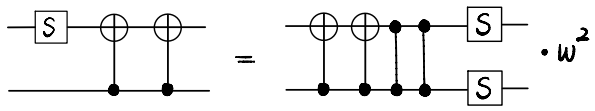
$R_{44}.LHS :=$ 

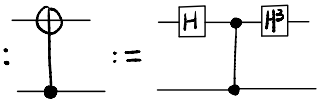
R_{25}^{7} 

$G_{16}^{2'}$ 

C_{13}, C_5 / C_{13}^{1} 

$=: R_{44}.RHS.$

R_{23}^{9*}: 

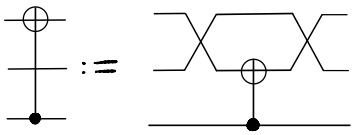
Def 2: 

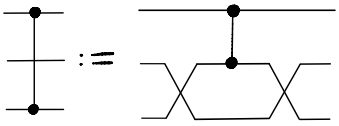
$C_1: w^3 = 1$

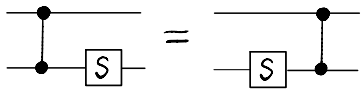
$C_2: H^4 = I$

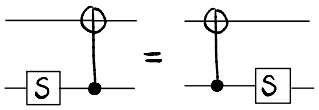
$C_3: S^3 = I$

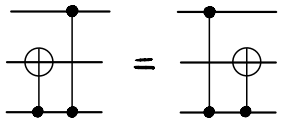
$C_5: SS' = S'S$

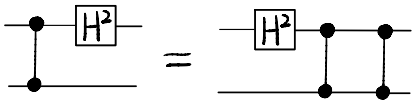
Def 7: 

Def 5: 

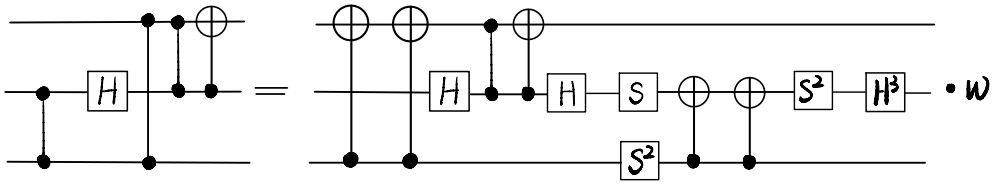
C_7: 

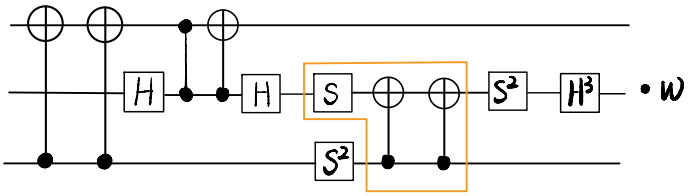
R_{24}: 

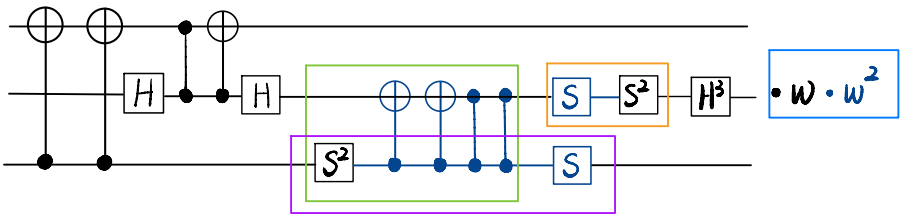
C_{13}^{7}: 

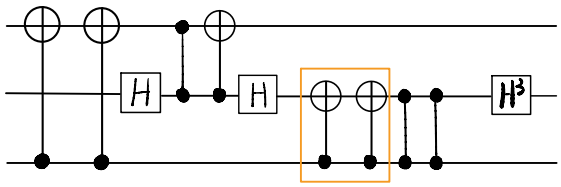
C_8: 

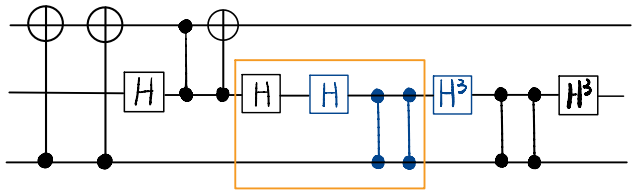
Lem 0 Def 2, Def 5, Def 7, C_1, C_2, C_3, C_5, C_7, C_8, C_{13}, C_{16}, R_{23}^{*}, R_{25}^{*} & R_{24} imply

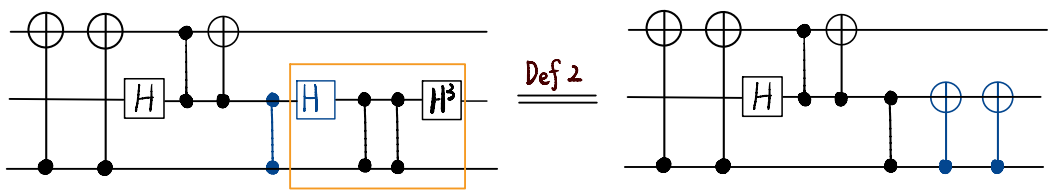
R_{47}: 

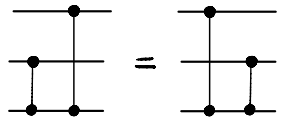
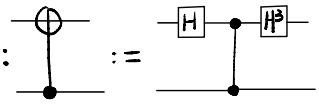
Proof: $R_{47}.RHS :=$ 

$\overset{R_{23}^{9*}}{=}$ 

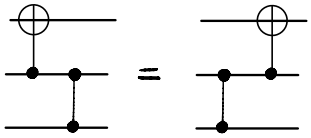
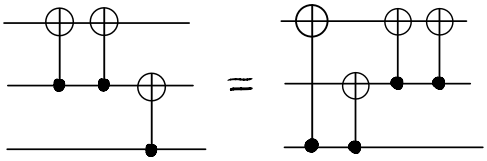
$\overset{C_7, R_{24}}{=\!=\!=}$ $\overset{C_1, C_3}{=\!=\!=}$ 

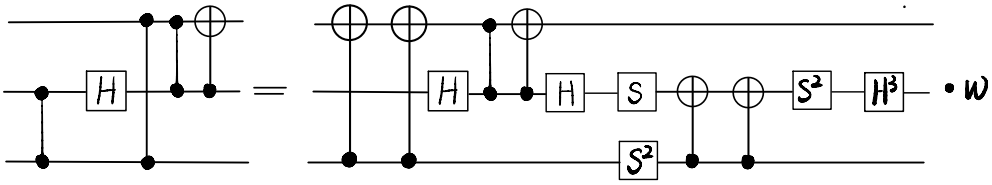
$\overset{\text{Def 2}}{=\!=\!=}$ $\overset{C_2}{=\!=\!=}$ 

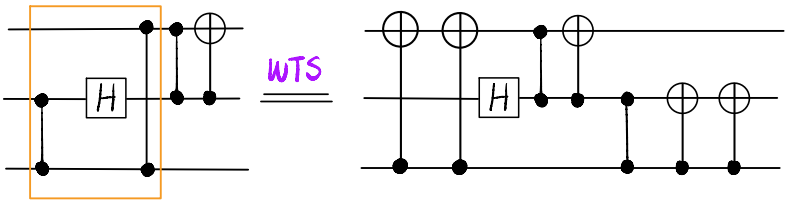
$\overset{C_8}{=\!=\!=}$ 

C_{13}^2:  Def 2: 

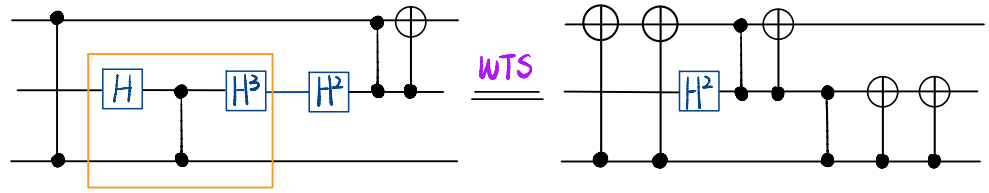
$C_1: w^3 = 1$ $C_2: H^4 = I$ $C_3: S^3 = I$ $C_5: SS' = S'S$

C_{13}^3:  C_{16}^{14}: 

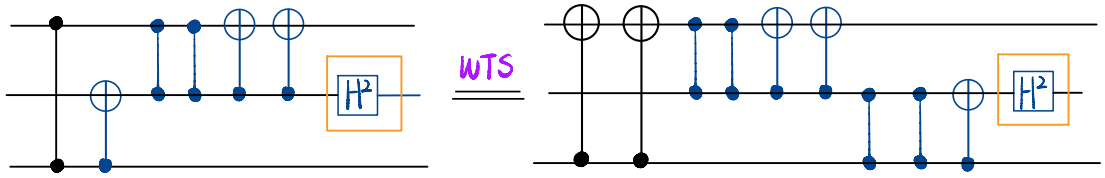
Lem 0 R_{47}: 

Proof cont. Hence R_{47}: 

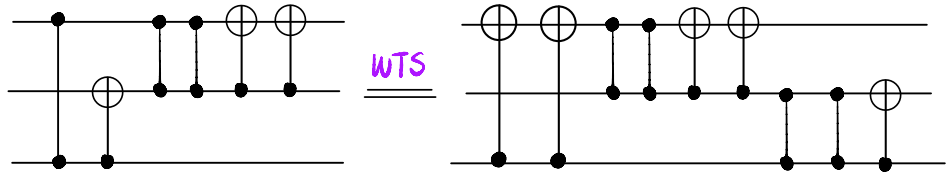
$C_{13}^2 \,|||\, C_2$

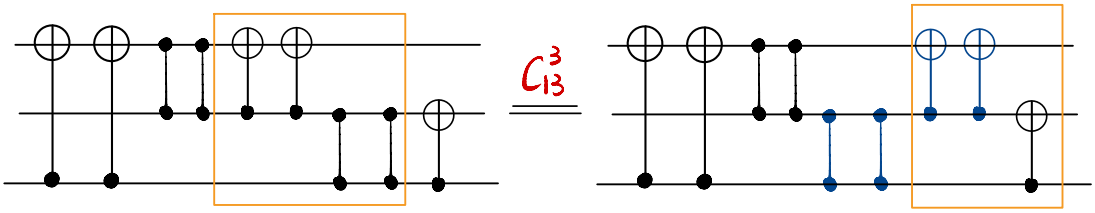
R_{47}: 

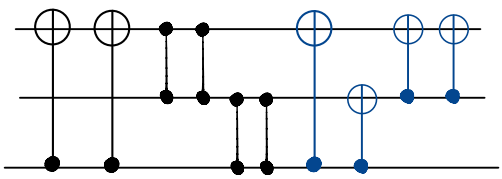
Def 2 $|||$ C_8

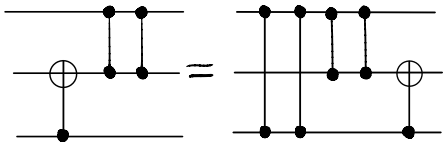
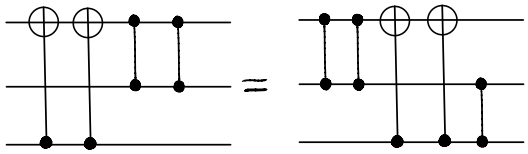
R_{47}: 

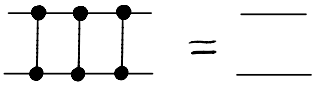
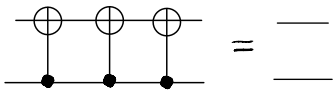
$||| C_2$

R_{47}: 

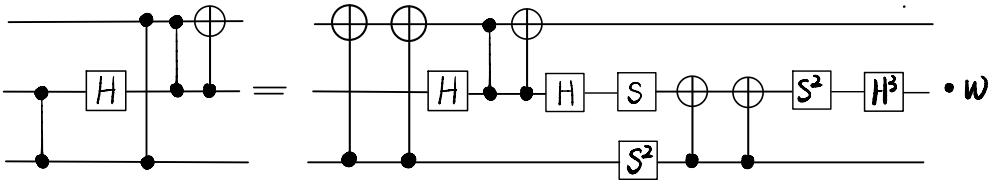
$R_{47}.RHS :=$ 

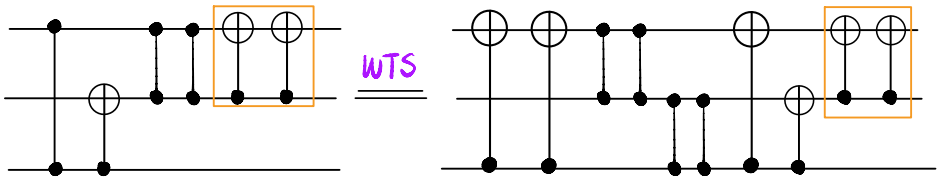
C_{16}^{14} 

C_{16}^{15}:  $C_{16}^{8'}$: 

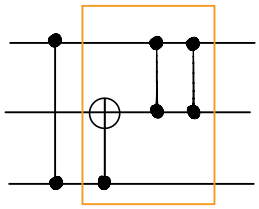
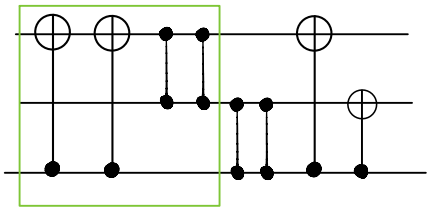
C_6^*:  C_6^{2*}: 

Lem 0

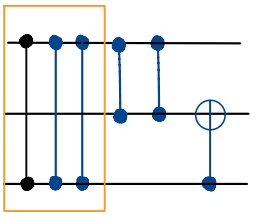
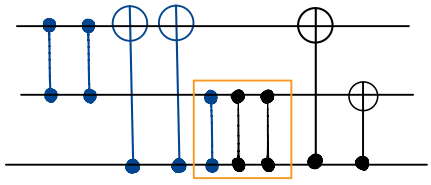
R_{47}: 

Proof cont. Hence R_{47}:  WTS

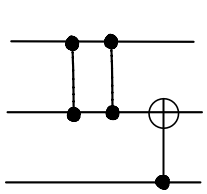
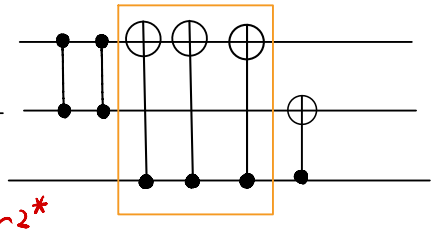
$\equiv C_6$

R_{47}:  WTS 

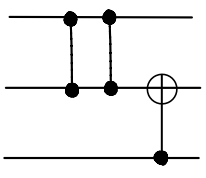
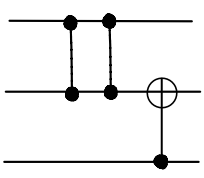
$C_{16}^{15} \equiv C_{16}^{8'}$

R_{47}:  WTS 

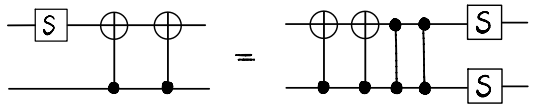
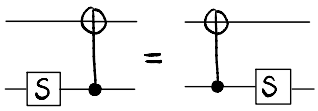
$\equiv C_6^*$

R_{47}:  WTS 

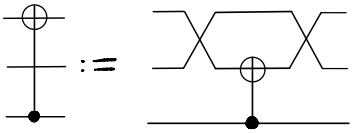
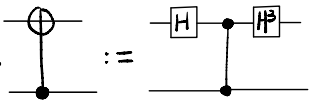
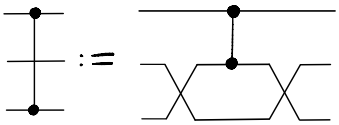
$\equiv C_6^{2*}$

R_{47}:  WTS 

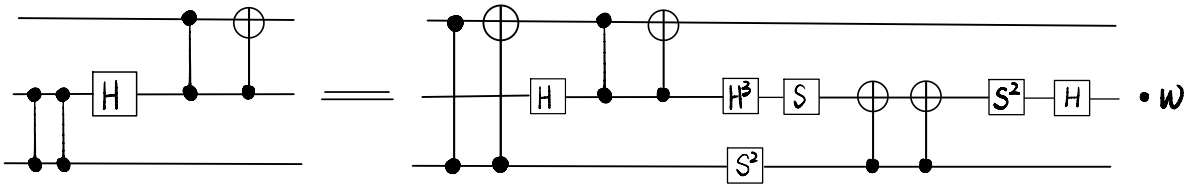
This completes the proof. ///

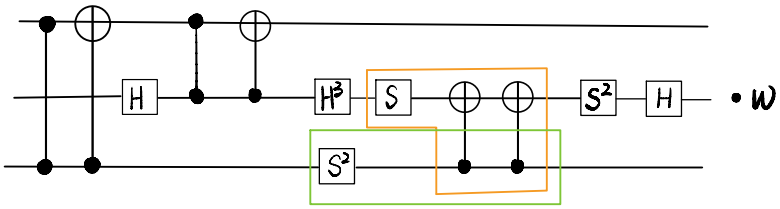
R_{23}^{q*}:  $\cdot w^2$ R_{24}: 

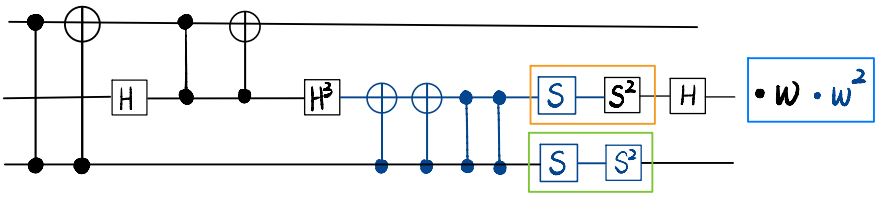
$C_1: w^3 = 1$ $C_2: H^4 = I$ $C_3: S^3 = I$

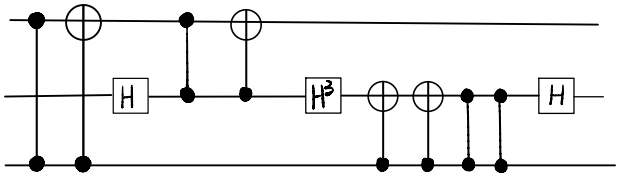
Def 7 :  Def 2:  Def 5: 

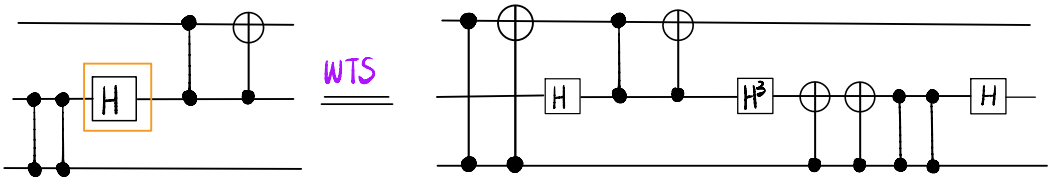
Lem P Def 2, Def 5, Def 7, C_1, C_2, C_3, C_5, C_7, C_8, C_{13}, C_{16}, R_{23}^* & R_{24} imply

R_{48}: 

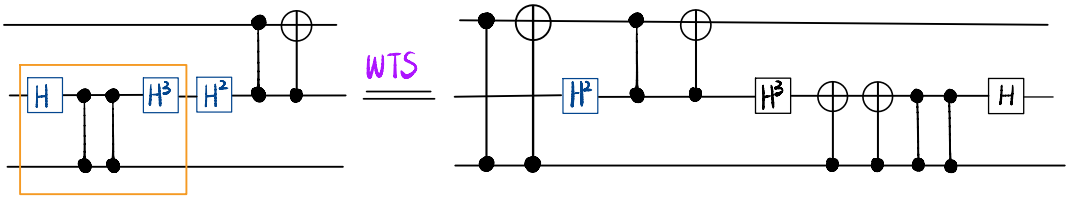
Proof: $R_{48}.RHS :=$ 

$\overset{R_{23}^{q*}}{=\!=}$ $\underset{R_{24}}{}$ 

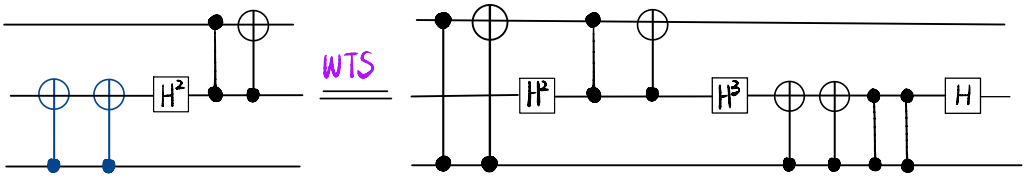
$\overset{C_1}{=\!=}$ $\underset{C_3}{}$ 

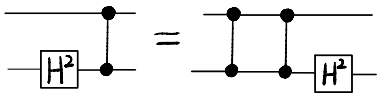
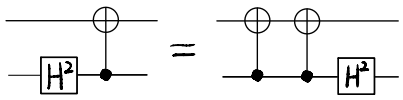
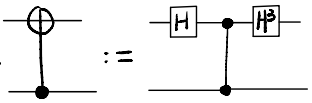
Hence R_{48}: 

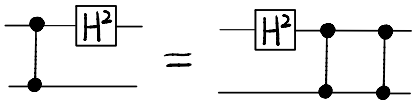
$\equiv C_2$

R_{48}: 

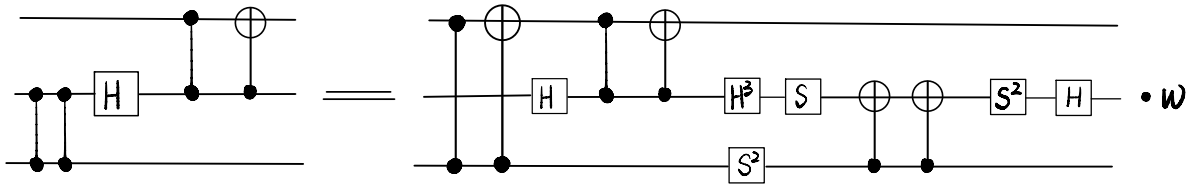
$\equiv$ Def 2

R_{48}: 

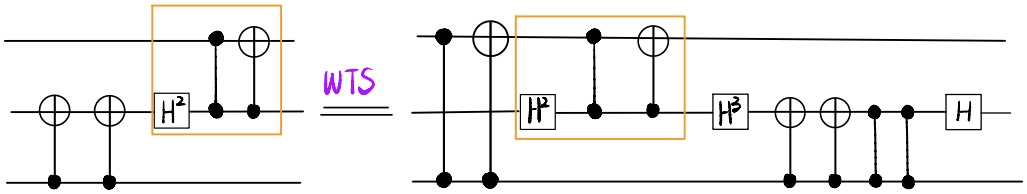
C_8^1:  C_8^6:  Def 2: 

C_8:  C_2: $H^4 = I$

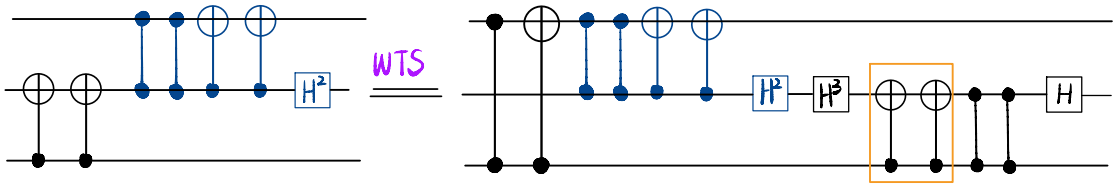
Lem P

R_{48}: 

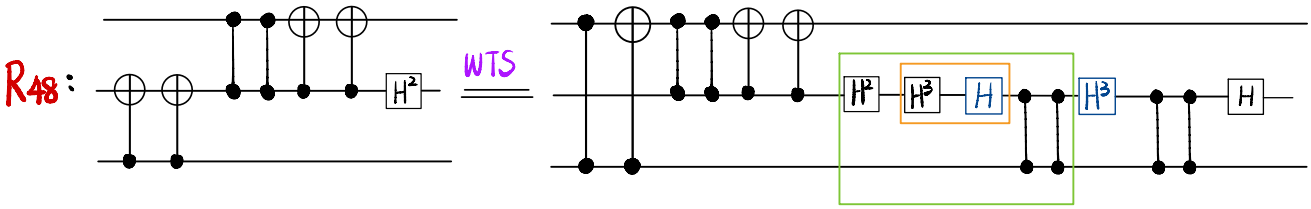
Proof cont.

R_{48}: 

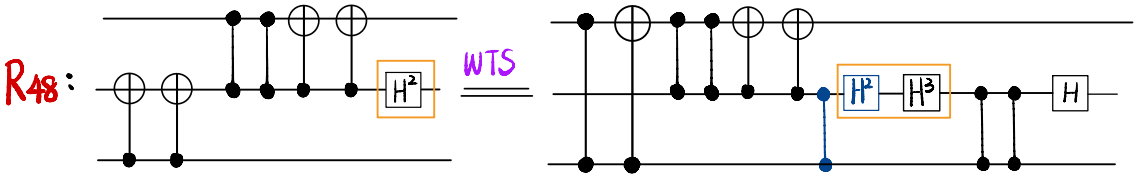
$C_8^1 \,|||\, C_8^6$

R_{48}: 

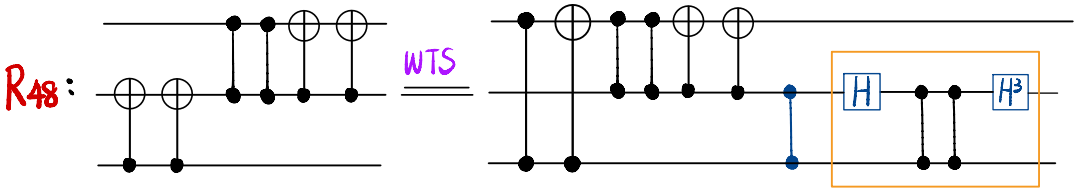
$|||$ Def 2

R_{48}: 

$C_8 \,|||\, C_2$

R_{48}: 

$|||\, C_2$

R_{48}: 

$|||$ Def 2

R_{48}: