
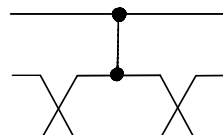
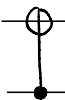
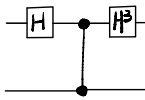

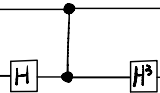
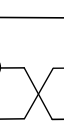
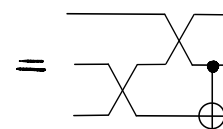

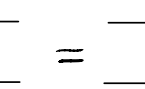


Def 5:  := 

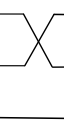
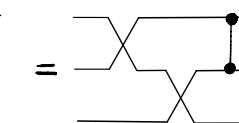
Def 2:  := 

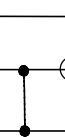
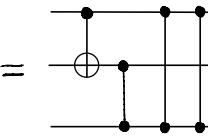
Def 4:  := 



C_{15}^8 :  = 


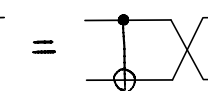
C_6^* :  = 


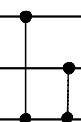
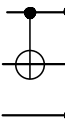
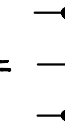
R_{16} :  = 

C_{15} :  = 

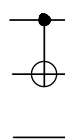
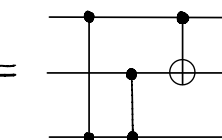
C_{16} :  = 


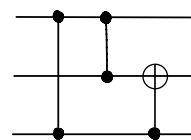
R_{17} :  = 





R_{31} :  = 

C_{13}^2 :  =  C_{13}^5 :  = 

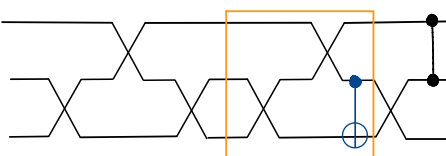
Lem J C_{16}^2 is a consequence of C_{13} , C_{15} , C_{16} , and the two-qutrit Clifford completeness, alongside the derived generators.

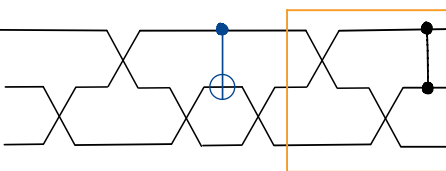
C_{16}^1 :  = 

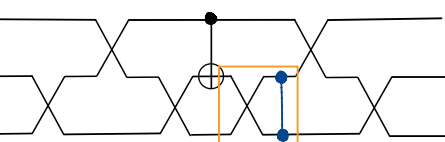
C_{16}^2 :  = 

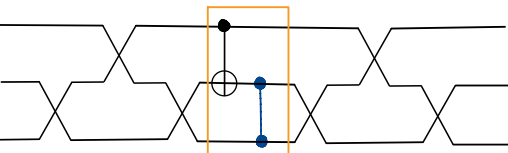
Proof: C_{16}^1 . RHS :=  $\equiv C_{16}$  $\equiv C_{13}^2$  $\equiv C_6^*$  =: C_{16}^1 . LHS.

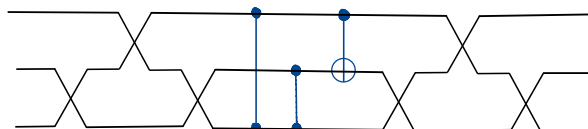
C_{16}^2 . LHS :=  $\equiv R_{16}$ 

$\equiv R_{31}$ 

$\equiv C_{15}^8$ 

$\equiv C_{15}$ 

$\equiv R_{17}$ 

$\equiv C_{16}^1$ 

$$\begin{array}{lll}
 R_{16}: \text{diagram} = \text{diagram} & R_{17}: \text{diagram} = \text{diagram} & R_{31}: \text{diagram} = \text{diagram} \\
 C_{15}^2: \text{diagram} = \text{diagram} & C_{15}: \text{diagram} = \text{diagram} & \\
 C_{15}^8: \text{diagram} = \text{diagram} & \text{Def 5: } \text{diagram} := \text{diagram} &
 \end{array}$$

Lem J C_{16}^2 is a consequence of C_{13} , C_{15} , C_{16} , and the two-qutrit Clifford completeness, alongside the derived generators.

$$C_{16}^1: \text{diagram} = \text{diagram} \qquad C_{16}^2: \text{diagram} = \text{diagram}$$

Proof cont.

C_{16}^2 . LHS =

$$\begin{array}{l}
 \text{diagram} \\
 \xrightarrow[R_{31}]{C_{15}^8} \text{diagram} \\
 \xrightarrow[C_{15}]{R_{17}} \text{diagram} \\
 \xrightarrow{\text{Def 5}} \text{diagram} \\
 \xrightarrow{R_{16}} \text{diagram} \\
 \xrightarrow{C_{15}^2} \text{diagram} \\
 \xrightarrow{R_{16}} \text{diagram} =: C_{16}^2 \text{. RHS.}
 \end{array}$$