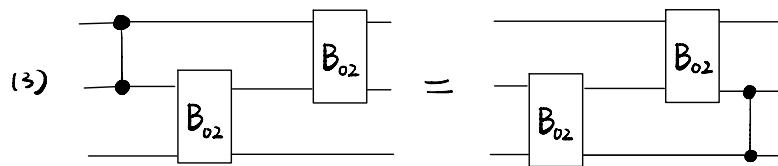
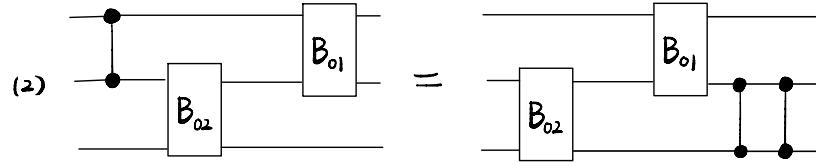
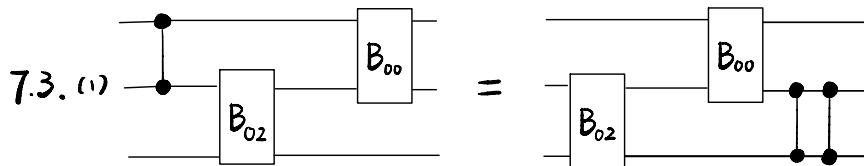
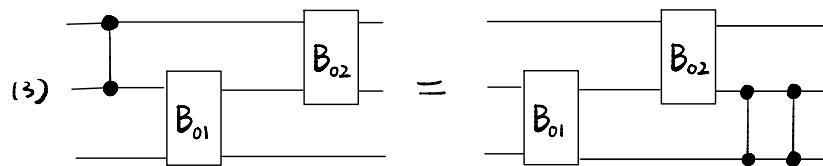
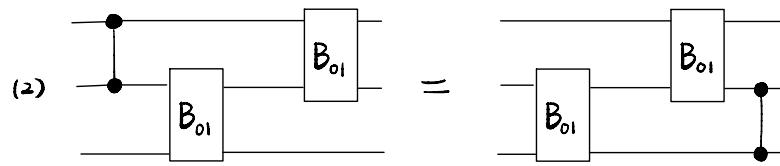
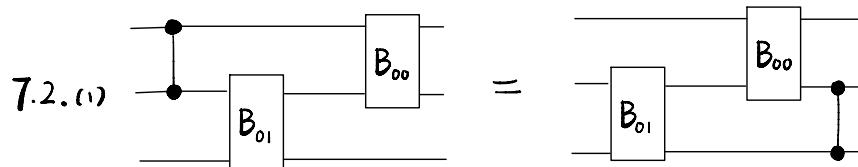
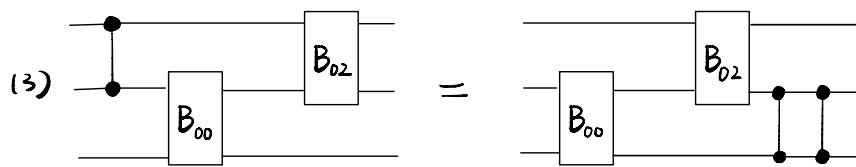
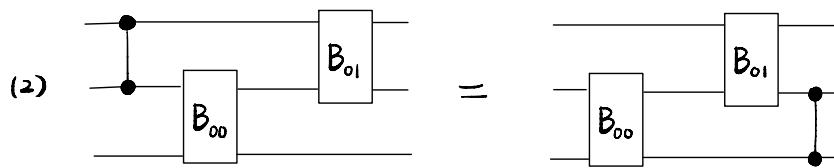
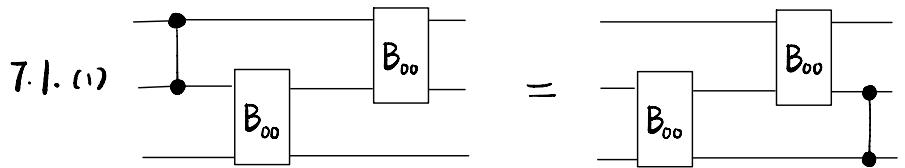
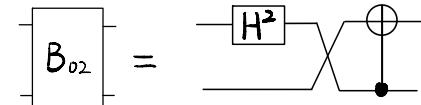
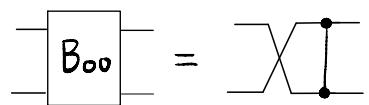


Lem 13 Def 3, Def 5, R₁₆, R₁₇, C₆, C₈, C₁₃ & C₁₅ imply





Def 3:

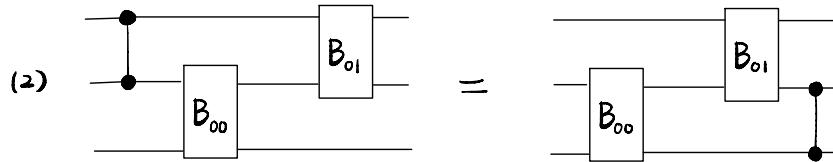
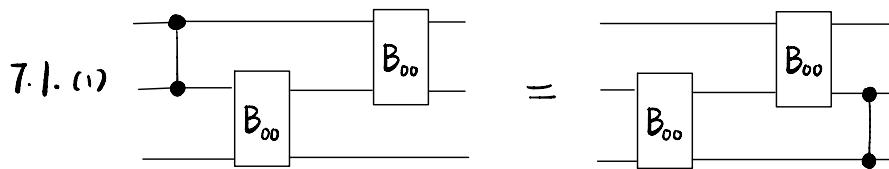
R₁₇: C₁₅⁴: C₁₃²:

C₁₅¹:

Def 5:

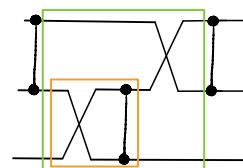
C₁₃:

Lem 13

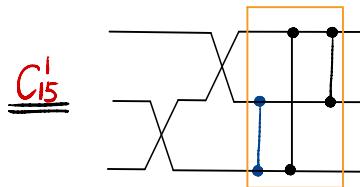
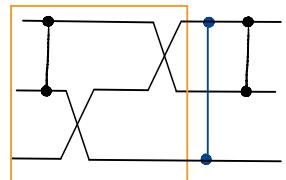


Proof: 7.1.(1). LHS :=

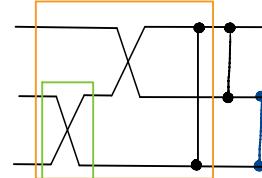
def



R₁₇
G₅⁴



C₁₃
C₁₃²



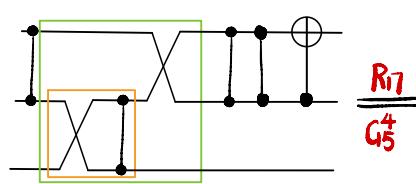
R₁₇
G₅⁴

def

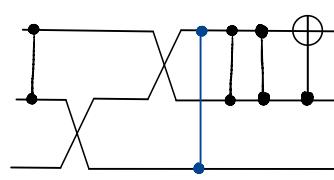
=: 7.1.(1). RHS.

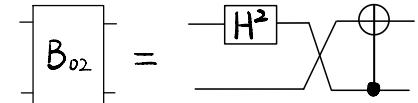
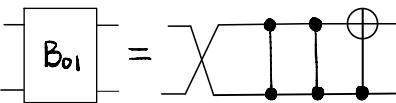
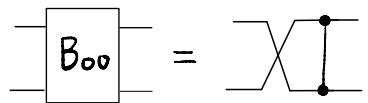
7.1. (2). LHS :=

def



R₁₇
G₅⁴





$C_{13}^3 : \text{Circuit diagram} = \text{Circuit diagram}$

$C_{13} : \text{Circuit diagram} = \text{Circuit diagram}$

$C_{13}^2 : \text{Circuit diagram} = \text{Circuit diagram}$

$R_{17} : \text{Circuit diagram} = \text{Circuit diagram}$

$C_{15}^4 : \text{Circuit diagram} = \text{Circuit diagram}$

$C_{15}^1 : \text{Circuit diagram} = \text{Circuit diagram}$

$C_8 : \text{Circuit diagram} = \text{Circuit diagram}$

Lem 13

$7.1.(2) \quad \text{Circuit diagram} = \text{Circuit diagram}$

$(3) \quad \text{Circuit diagram} = \text{Circuit diagram}$

Proof cont:

$\underline{\underline{C_{15}}} \quad \text{Circuit diagram} \quad \underline{\underline{C_{13}}} \quad \text{Circuit diagram}$

$\underline{\underline{C_{13}}} \quad \text{Circuit diagram} \quad \underline{\underline{R_{17}}} \quad \text{Circuit diagram} \quad \underline{\underline{G_5^4}} \quad \text{def} \quad \text{Circuit diagram} =: 7.1.(2). \text{ RHS.}$

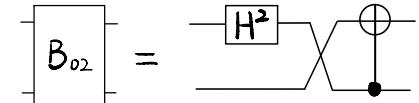
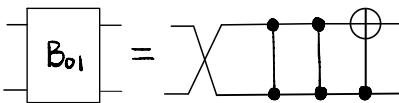
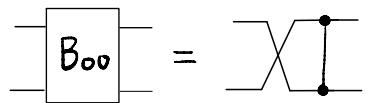
$7.1.(3). \text{ LHS} := \text{Circuit diagram} \quad \underline{\underline{\text{def}}} \quad \text{Circuit diagram} \quad \underline{\underline{C_8}}$

$\text{Circuit diagram} \quad \underline{\underline{H^2}} \quad \text{Circuit diagram} \quad \underline{\underline{H^2}}$

$\underline{\underline{R_{17}}} \quad \underline{\underline{G_5^4}} \quad \text{Circuit diagram} \quad \underline{\underline{C_{15}^1}} \quad \text{Circuit diagram}$

$\text{Circuit diagram} \quad \underline{\underline{H^2}} \quad \text{Circuit diagram} \quad \underline{\underline{C_{13}^3}} \quad \underline{\underline{C_{13}^2}}$

$\underline{\underline{R_{17}}} \quad \underline{\underline{G_5^4}} \quad \text{Circuit diagram} \quad \underline{\underline{\text{def}}} \quad \text{Circuit diagram} \quad \underline{\underline{B_{02}}} \quad \text{Circuit diagram} =: 7.1.(3). \text{ RHS.}$



$C_{13}^5: \quad \text{Diagram} = \text{Diagram}$

$C_{13}: \quad \text{Diagram} = \text{Diagram}$

$C_{13}^2: \quad \text{Diagram} = \text{Diagram}$

$R_{17}: \quad \text{Diagram} = \text{Diagram}$

$R_{16}: \quad \text{Diagram} = \text{Diagram}$

$C_{15}^2: \quad \text{Diagram} = \text{Diagram}$

$C_{15}^3: \quad \text{Diagram} = \text{Diagram}$

Lem 13

$7.2.(1) \quad \text{Diagram} = \text{Diagram}$

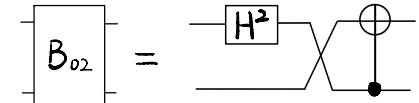
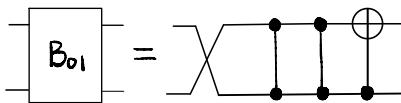
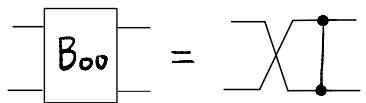
$\text{Proof cont: } 7.2.(1). \text{ LHS} := \text{Diagram} \stackrel{\text{def}}{=} \text{Diagram}$

$\underline{\underline{R_{16}}} \quad \text{Diagram} \stackrel{\text{R}_{16}, \text{C}_{15}^2}{=} \text{Diagram}$

$\underline{\underline{C_{13}^5}} \quad \text{Diagram} \stackrel{\text{R}_{16}}{=} \text{Diagram}$

$\underline{\underline{R_{17}}} \quad \text{Diagram} \stackrel{\text{R}_{16}, \text{C}_{15}^3}{=} \text{Diagram}$

$\underline{\underline{\text{def}}} \quad \text{Diagram} =: 7.2.(1). \text{ RHS.}$



$C_{13}^5: \quad \text{Diagram} = \text{Diagram}$

$C_{13}: \quad \text{Diagram} = \text{Diagram}$

$C_{13}^2: \quad \text{Diagram} = \text{Diagram}$

$R_{17}: \quad \text{Diagram} = \text{Diagram}$

$R_{16}: \quad \text{Diagram} = \text{Diagram}$

$C_{15}^2: \quad \text{Diagram} = \text{Diagram}$

$C_{15}^3: \quad \text{Diagram} = \text{Diagram}$

Lem 13

$7.2.(2) \quad \text{Diagram} = \text{Diagram}$

Proof cont: 7.2.(2). LHS :=

$\text{Diagram} \stackrel{\text{def}}{=} \text{Diagram}$

$\underline{R_{16}} \quad \text{Diagram} \quad \underline{R_{17}} \quad \underline{G_5^2}$

Diagram

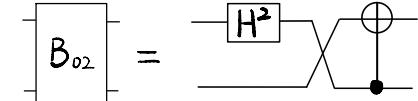
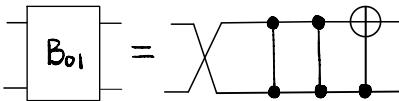
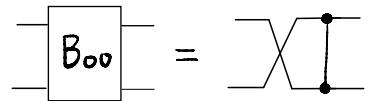
$\underline{C_{13}^5} \quad \underline{C_{15}^2, R_{16}}$

Diagram

$\underline{R_{17}} \quad \underline{C_{15}^3}$

Diagram

$\underline{\text{def}} \quad \text{Diagram} =: 7.2.(2). \text{RHS.}$



$C_{13}^5: \quad \text{Diagram} = \text{Diagram}$

$C_{13}^3: \quad \text{Diagram} = \text{Diagram}$

$C_{13}^2: \quad \text{Diagram} = \text{Diagram}$

$R_{17}: \quad \text{Diagram} = \text{Diagram}$

$R_{16}: \quad \text{Diagram} = \text{Diagram}$

$C_8: \quad \text{Diagram} = \text{Diagram}$

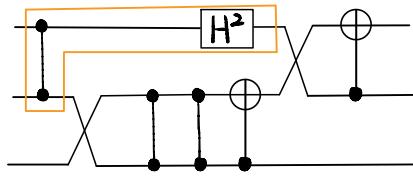
$C_{15}^2: \quad \text{Diagram} = \text{Diagram}$

$C_{15}^3: \quad \text{Diagram} = \text{Diagram}$

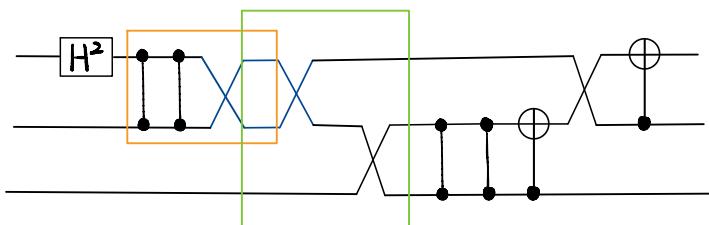
Lem 13

$7.2.(3) \quad \text{Diagram} = \text{Diagram}$

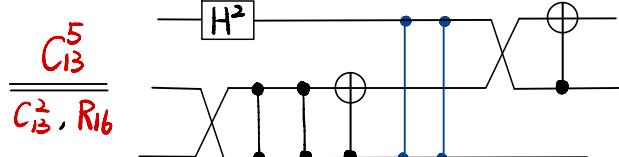
Proof cont: $7.2.(3). \text{LHS} := \text{Diagram}$



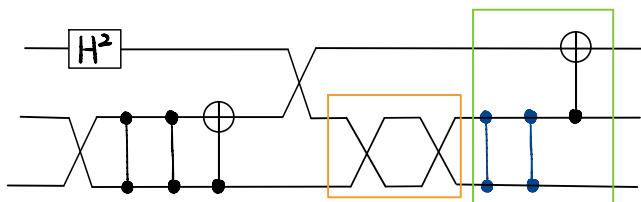
$\underline{\underline{C_8}} \quad \text{Diagram} \quad \underline{\underline{R_{16}}}$



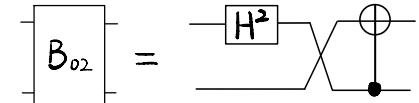
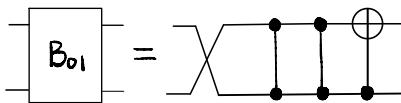
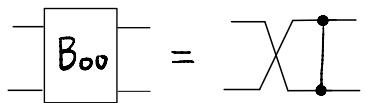
$\underline{\underline{R_{17}}} \quad \underline{\underline{C_5^2}} \quad \text{Diagram}$



$\underline{\underline{R_{16}}} \quad \underline{\underline{C_3^5}} \quad \text{Diagram}$



$\underline{\underline{R_{16}}} \quad \underline{\underline{C_3^3}} \quad \text{Diagram} \quad \underline{\underline{\text{def}}} \quad \text{Diagram} =: 7.2.(3). \text{RHS.}$



$C_{13}^5: \quad \text{Diagram} = \text{Diagram}$

$C_{13}: \quad \text{Diagram} = \text{Diagram}$

$C_8: \quad \text{Diagram} = \text{Diagram}$

$R_{17}: \quad \text{Diagram} = \text{Diagram}$

$R_{16}: \quad \text{Diagram} = \text{Diagram}$

$C_8: \quad \text{Diagram} = \text{Diagram}$

$C_{15}^2: \quad \text{Diagram} = \text{Diagram}$

$C_{15}^3: \quad \text{Diagram} = \text{Diagram}$

Lem 13

$7.3.(1) \quad \text{Diagram} = \text{Diagram}$

Proof cont: 7.3.(1). LHS := $\text{Diagram} \stackrel{\text{def}}{=} \text{Diagram}$

$\text{C}_8 \quad \text{Diagram} \quad \dots \quad \text{Diagram}$

$\text{C}_{13}^5 \quad \dots \quad \text{Diagram} \quad \text{C}_{13} \quad \text{Diagram}$

$\text{def} \quad \text{Diagram} =: 7.3.(1). \text{RHS.}$