$YA_0X = XB_0Y$
No constraints
No conditions

PairComp A_0 B_0

$YA_0X = XB_0Y$
$X \neq B_0X_S$
$X \neq X_PA_0$
No conditions

$YA_1X = XA_1Y$
No constraints
No conditions

$YA_1X = XB_0Y$
$X \neq X_PA_0$
$A_1 := A_0B_0$

$YA_0X = XA_1Y$
$X \neq B_0X_S$
$A_1 := A_0B_0$

Pick 1

$YA_0X = XB_0Y$
$X \neq B_0X_S$
$X \neq X_PA_0$
No conditions

BlockComp A_0

$A_2 = A_3B_0A_4$
No constraints
$A_2 := A_0^{i_1+i_2+1}$
$A_3 := A_0^{i_1}$
$A_4 := A_0^{i_2}$

$A_2XA_3 = A_4XA_3B_0A_5$
$X \neq \varepsilon$
$A_2 := A_0^{i_1+i_3+1}$
$A_3 := A_0^{i_2}$
$A_4 := A_0^{i_1}$
$A_5 := A_0^{i_3}$

$A_2YA_3 = A_4B_0A_2YA_5$
$Y \neq \varepsilon$
$A_2 := A_0^{i_2}$
$A_3 := A_0^{i_1+i_3+1}$
$A_4 := A_0^{i_1}$
$A_5 := A_0^{i_3}$

$A_2YA_3XA_4 = A_5XA_4B_0A_2YA_6$
$Y \neq \varepsilon$
$X \neq \varepsilon$
$A_2 := A_0^{i_3}$
$A_3 := A_0^{i_1+i_4+1}$
$A_4 := A_0^{i_2}$
$A_5 := A_0^{i_1}$
$A_6 := A_0^{i_4}$

Pick 2

$A_2XA_3 = A_4XA_3B_0A_5$
$X \neq \varepsilon$
$A_2 := A_0^{i_1+i_3+1}$
$A_3 := A_0^{i_2}$
$A_4 := A_0^{i_1}$
$A_5 := A_0^{i_3}$