Step	Algorithm:		
1a			
4			
	where		
2			
3	while do		
2,3		٨	
5a			
	where		
6			
8			
5b			
7			
2			
	endwhile		
2,3		^ ¬(	)
1b			

Step	Algorithm: $[C] := \text{SYMM\_LU\_UNB\_VAR2}(A, B, C)$
1a	$C = \widehat{C}$
4	$B \to \left(B_L \middle  B_R\right), C \to \left(C_L \middle  C_R\right)$
	where $B_R$ has 0 columns, $C_R$ has 0 columns
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
3	while $n(B_R) < n(B)$ do
2,3	$\left(C_L \middle  C_R\right) = \left(\widehat{C}_L \middle  \widehat{C}_R\right) \wedge n(B_R) < n(B)$
5a	$\left(B_L \middle  B_R\right) \to \left(B_0 \middle  b_1 \middle  B_2\right), \left(C_L \middle  C_R\right) \to \left(C_0 \middle  c_1 \middle  C_2\right)$
	where $b_1$ has 1 column, $c_1$ has 1 column
6	$\left(C_0 \middle  c_1 \middle  C_2\right) = \left(\widehat{C}_0 \middle  \widehat{c}_1 \middle  AB_0 + \widehat{C}_2\right)$
8	$c_1 := Ab_1 + c_1$
5b	$ \begin{pmatrix} B_L   B_R \end{pmatrix} \leftarrow \begin{pmatrix} B_0   b_1   B_2 \end{pmatrix}, \begin{pmatrix} C_L   C_R \end{pmatrix} \leftarrow \begin{pmatrix} C_0   c_1   C_2 \end{pmatrix} $ $ \begin{pmatrix} C_0   c_1   C_2 \end{pmatrix} = \begin{pmatrix} \widehat{C}_0   Ab_1 + \widehat{c}_1   AB_0 + \widehat{C}_2 \end{pmatrix} $
7	
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
	endwhile
2,3	$\left(C_L \middle  C_R\right) = \left(\widehat{C}_L \middle  \widehat{C}_R\right) \land \neg (n(B_R) < n(B))$
1b	$[C] = \operatorname{symm\_lu}(A, B, \widehat{C})$

Algorithm: 
$$[C] := \text{SYMM\_LU\_UNB\_VAR2}(A, B, C)$$
 $B \to \left(B_L \middle| B_R\right)$ ,  $C \to \left(C_L \middle| C_R\right)$ 

where  $B_R$  has 0 columns,  $C_R$  has 0 columns

while  $n(B_R) < n(B)$  do

 $\left(B_L \middle| B_R\right) \to \left(B_0 \middle| b_1 \middle| B_2\right)$ ,  $\left(C_L \middle| C_R\right) \to \left(C_0 \middle| c_1 \middle| C_2\right)$ 

where  $b_1$  has 1 column,  $c_1$  has 1 column

 $c_1 := Ab_1 + c_1$ 
 $\left(B_L \middle| B_R\right) \leftarrow \left(B_0 \middle| b_1 \middle| B_2\right)$ ,  $\left(C_L \middle| C_R\right) \leftarrow \left(C_0 \middle| c_1 \middle| C_2\right)$ 

endwhile

Step	Algorithm: $[C] := \text{SYMM\_LU\_UNB\_VAR2}(A, B, C)$
1a	$C = \widehat{C}$
4	
	where
2	
3	while do
2,3	^
5a	
	where
6	
8	
5b	
7	
2	
	endwhile
2,3	$\land \neg ($
1b	$[C] = \operatorname{symm} \operatorname{lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM\_LU\_UNB\_VAR2}(A, B, C)$
1a	$C = \widehat{C}$
4	
	where
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
3	while do
2,3	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right) \wedge$
5a	
	where
6	
8	
5b	
7	
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
	endwhile
2	$ \begin{pmatrix} C_L \middle  C_R \end{pmatrix} = \left( \widehat{C}_L \middle  \widehat{C}_R \right) \land \neg ( )  [C] = \operatorname{symm} \operatorname{lu}(A, B, \widehat{C}) $
1b	$[C] = \operatorname{symm\_lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM\_LU\_UNB\_VAR2}(A, B, C)$
1a	$C = \widehat{C}$
4	
	where
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
3	while $n(B_R) < n(B)$ do
2,3	$\left(C_L \middle  C_R\right) = \left(\widehat{C}_L \middle  \widehat{C}_R\right) \wedge n(B_R) < n(B)$
5a	
	where
6	
8	
5b	
7	
'	
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
	endwhile
2,3	$\left(C_L \middle  C_R\right) = \left(\widehat{C}_L \middle  \widehat{C}_R\right) \land \neg (n(B_R) < n(B))$
1b	$[C] = \operatorname{symm\_lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM\_LU\_UNB\_VAR2}(A, B, C)$
1a	$C = \widehat{C}$
4	$B \to \begin{pmatrix} B_L   B_R \end{pmatrix}$ , $C \to \begin{pmatrix} C_L   C_R \end{pmatrix}$ where $B_R$ has 0 columns, $C_R$ has 0 columns
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
3	while $n(B_R) < n(B)$ do
2,3	$\left(C_L \middle  C_R\right) = \left(\widehat{C}_L \middle  \widehat{C}_R\right) \wedge n(B_R) < n(B)$
5a	
	where
6	
8	
5b	
7	
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
	endwhile
2,3	$\left(C_L \middle  C_R\right) = \left(\widehat{C}_L \middle  \widehat{C}_R\right) \land \neg (n(B_R) < n(B))$
1b	$[C] = \operatorname{symm} \operatorname{lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM\_LU\_UNB\_VAR2}(A, B, C)$
1a	$C = \hat{C}$
4	$B \to \left(B_L \middle  B_R\right), C \to \left(C_L \middle  C_R\right)$
2	where $B_R$ has 0 columns, $C_R$ has 0 columns $ \begin{pmatrix} C_L   C_R \end{pmatrix} = \begin{pmatrix} \hat{C}_L   \hat{C}_R \end{pmatrix} $
3	while $n(B_R) < n(B)$ do
2,3	$\left(C_L \middle  C_R\right) = \left(\widehat{C}_L \middle  \widehat{C}_R\right) \wedge n(B_R) < n(B)$
5a	$ \begin{pmatrix} B_L   B_R \end{pmatrix} \to \begin{pmatrix} B_0   b_1   B_2 \end{pmatrix}, \begin{pmatrix} C_L   C_R \end{pmatrix} \to \begin{pmatrix} C_0   c_1   C_2 \end{pmatrix} $ where $b_1$ has 1 column, $c_1$ has 1 column
6	
8	
5b	$\left(B_L \middle  B_R\right) \leftarrow \left(B_0 \middle  b_1 \middle  B_2\right), \left(C_L \middle  C_R\right) \leftarrow \left(C_0 \middle  c_1 \middle  C_2\right)$
7	
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
	endwhile
2,3	$\left(C_L \middle  C_R\right) = \left(\widehat{C}_L \middle  \widehat{C}_R\right) \land \neg (n(B_R) < n(B))$
1b	$[C] = \operatorname{symm\_lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM\_LU\_UNB\_VAR2}(A, B, C)$
1a	$C = \widehat{C}$
4	$B \to \left(B_L \middle  B_R\right), C \to \left(C_L \middle  C_R\right)$
	where $B_R$ has 0 columns, $C_R$ has 0 columns
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
3	while $n(B_R) < n(B)$ do
2,3	$\left(C_L \middle  C_R\right) = \left(\widehat{C}_L \middle  \widehat{C}_R\right) \wedge n(B_R) < n(B)$
5a	$(B_L B_R) \rightarrow (B_0 b_1 B_2), (C_L C_R) \rightarrow (C_0 c_1 C_2)$
	where $b_1$ has 1 column, $c_1$ has 1 column
6	$\left(C_0 \middle  c_1 \middle  C_2\right) = \left(\widehat{C}_0 \middle  \widehat{c}_1 \middle  AB_0 + \widehat{C}_2\right)$
8	
5b	$\left(B_L \middle  B_R\right) \leftarrow \left(B_0 \middle  b_1 \middle  B_2\right), \left(C_L \middle  C_R\right) \leftarrow \left(C_0 \middle  c_1 \middle  C_2\right)$
7	
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
	endwhile
2,3	$\left(C_L \middle  C_R\right) = \left(\widehat{C}_L \middle  \widehat{C}_R\right) \land \neg (n(B_R) < n(B))$
1b	$[C] = \operatorname{symm} \operatorname{lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM\_LU\_UNB\_VAR2}(A, B, C)$
ыер	
1a	$C = \widehat{C}$
4	$B \to \left(B_L \middle  B_R\right), C \to \left(C_L \middle  C_R\right)$
	where $B_R$ has 0 columns, $C_R$ has 0 columns
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
3	while $n(B_R) < n(B)$ do
2,3	
5a	$\left(B_L \middle  B_R\right)  o \left(B_0 \middle  b_1 \middle  B_2\right), \left(C_L \middle  C_R\right)  o \left(C_0 \middle  c_1 \middle  C_2\right)$
	where $b_1$ has 1 column, $c_1$ has 1 column
6	$\left(C_0 \middle  c_1 \middle  C_2\right) = \left(\widehat{C}_0 \middle  \widehat{c}_1 \middle  AB_0 + \widehat{C}_2\right)$
8	
5b	$ \begin{pmatrix} B_L   B_R \end{pmatrix} \leftarrow \begin{pmatrix} B_0   b_1   B_2 \end{pmatrix}, \begin{pmatrix} C_L   C_R \end{pmatrix} \leftarrow \begin{pmatrix} C_0   c_1   C_2 \end{pmatrix} $ $ \begin{pmatrix} C_0   c_1   C_2 \end{pmatrix} = \begin{pmatrix} \widehat{C}_0   Ab_1 + \widehat{c}_1   AB_0 + \widehat{C}_2 \end{pmatrix} $
7	$\left(C_0 \middle  c_1 \middle  C_2\right) = \left(\widehat{C}_0 \middle  Ab_1 + \widehat{c}_1 \middle  AB_0 + \widehat{C}_2\right)$
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
	endwhile
2	$\left( C_L \middle  C_R \right) = \left( \widehat{C}_L \middle  \widehat{C}_R \right) \land \neg (n(B_R) < n(B))$
1b	$[C] = \operatorname{symm\_lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM\_LU\_UNB\_VAR2}(A, B, C)$
1a	$C = \widehat{C}$
4	$B  ightarrow \left(B_L \middle  B_R\right), C  ightarrow \left(C_L \middle  C_R\right)$
	where $B_R$ has 0 columns, $C_R$ has 0 columns
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
3	while $n(B_R) < n(B)$ do
2,3	$\left(C_L \middle  C_R\right) = \left(\widehat{C}_L \middle  \widehat{C}_R\right) \wedge n(B_R) < n(B)$
5a	$\left(B_L \middle  B_R\right) \to \left(B_0 \middle  b_1 \middle  B_2\right), \left(C_L \middle  C_R\right) \to \left(C_0 \middle  c_1 \middle  C_2\right)$
	where $b_1$ has 1 column, $c_1$ has 1 column
6	$\left(C_0 \middle  c_1 \middle  C_2\right) = \left(\widehat{C}_0 \middle  \widehat{c}_1 \middle  AB_0 + \widehat{C}_2\right)$
8	$c_1 := Ab_1 + c_1$
5b	$ \begin{pmatrix} B_L   B_R \end{pmatrix} \leftarrow \begin{pmatrix} B_0   b_1   B_2 \end{pmatrix}, \begin{pmatrix} C_L   C_R \end{pmatrix} \leftarrow \begin{pmatrix} C_0   c_1   C_2 \end{pmatrix} $ $ \begin{pmatrix} C_0   c_1   C_2 \end{pmatrix} = \begin{pmatrix} \widehat{C}_0   Ab_1 + \widehat{c}_1   AB_0 + \widehat{C}_2 \end{pmatrix} $
7	$\left(C_0 \middle  c_1 \middle  C_2\right) = \left(\widehat{C}_0 \middle  Ab_1 + \widehat{c}_1 \middle  AB_0 + \widehat{C}_2\right)$
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
	endwhile
2,3	$\left(C_L \middle  C_R\right) = \left(\widehat{C}_L \middle  \widehat{C}_R\right) \land \neg (n(B_R) < n(B))$
1b	$[C] = \operatorname{symm\_lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM\_LU\_UNB\_VAR2}(A, B, C)$
	$B \to \begin{pmatrix} B_L   B_R \end{pmatrix}$ , $C \to \begin{pmatrix} C_L   C_R \end{pmatrix}$ where $B_R$ has 0 columns, $C_R$ has 0 columns
	while $n(B_R) < n(B)$ do
	$\begin{pmatrix} B_L   B_R \end{pmatrix} \rightarrow \begin{pmatrix} B_0   b_1   B_2 \end{pmatrix}, \begin{pmatrix} C_L   C_R \end{pmatrix} \rightarrow \begin{pmatrix} C_0   c_1   C_2 \end{pmatrix}$ where $b_1$ has 1 column, $c_1$ has 1 column
	$c_1 := Ab_1 + c_1$
	$\left(B_L \middle  B_R\right) \leftarrow \left(B_0 \middle  b_1 \middle  B_2\right), \left(C_L \middle  C_R\right) \leftarrow \left(C_0 \middle  c_1 \middle  C_2\right)$
	endwhile

Algorithm: 
$$[C] := \text{SYMM\_LU\_UNB\_VAR2}(A, B, C)$$
 $B \to \begin{pmatrix} B_L \middle| B_R \end{pmatrix}$ ,  $C \to \begin{pmatrix} C_L \middle| C_R \end{pmatrix}$ 

where  $B_R$  has 0 columns,  $C_R$  has 0 columns

while  $n(B_R) < n(B)$  do

 $\begin{pmatrix} B_L \middle| B_R \end{pmatrix} \to \begin{pmatrix} B_0 \middle| b_1 \middle| B_2 \end{pmatrix}$ ,  $\begin{pmatrix} C_L \middle| C_R \end{pmatrix} \to \begin{pmatrix} C_0 \middle| c_1 \middle| C_2 \end{pmatrix}$ 

where  $b_1$  has 1 column,  $c_1$  has 1 column

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endwhile