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: $[C] := \text{SYMM_LU_UNB_VAR1}(A, B, C)$
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_L has 0 columns, C_L has 0 columns
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
3	while $n(B_L) < n(B)$ do
2,3	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \wedge n(B_L) < n(B)$
5a	$\left(B_L \middle B_R\right) ightarrow \left(B_0 \middle b_1 \middle B_2\right), \left(C_L \middle C_R\right) ightarrow \left(C_0 \middle c_1 \middle C_2\right)$
	where b_1 has 1 column, c_1 has 1 column
6	$\left(C_0 \middle c_1 \middle C_2\right) = \left(AB_0 + \widehat{C}_0 \middle \widehat{c}_1 \middle \widehat{C}_2\right)$
8	$c_1 := Ab_1 + c_1$
5b	$ \begin{pmatrix} B_L \middle B_R \end{pmatrix} \leftarrow \begin{pmatrix} B_0 \middle b_1 \middle B_2 \end{pmatrix}, \begin{pmatrix} C_L \middle C_R \end{pmatrix} \leftarrow \begin{pmatrix} C_0 \middle c_1 \middle C_2 \end{pmatrix} $ $ \begin{pmatrix} C_0 \middle c_1 \middle C_2 \end{pmatrix} = \begin{pmatrix} AB_0 + \widehat{C}_0 \middle Ab_1 + \widehat{c}_1 \middle \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	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \land \neg (n(B_L) < n(B))$
1b	$[C] = \operatorname{symm_lu}(A, B, \widehat{C})$

Algorithm:
$$[C] := \text{SYMM_LU_UNB_VAR1}(A, B, C)$$
 $B \to \begin{pmatrix} B_L \middle| B_R \end{pmatrix}$, $C \to \begin{pmatrix} C_L \middle| C_R \end{pmatrix}$

where B_L has 0 columns, C_L has 0 columns

while $n(B_L) < n(B)$ 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

 $c_1 := Ab_1 + c_1$
 $\begin{pmatrix} B_L \middle| B_R \end{pmatrix} \leftarrow \begin{pmatrix} B_0 \middle| b_1 \middle| B_2 \end{pmatrix}$, $\begin{pmatrix} C_L \middle| C_R \end{pmatrix} \leftarrow \begin{pmatrix} C_0 \middle| c_1 \middle| C_2 \end{pmatrix}$

endwhile

Step	Algorithm: $[C] := \text{SYMM_LU_UNB_VAR1}(A, B, C)$
1a	$C = \widehat{C}$
4	
	where
2	
3	while do
2,3	^
5a	
	where
6	
8	
5b	
7	
2	
	endwhile
2,3	∧¬()
1b	$[C] = \operatorname{symm_lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM_LU_UNB_VAR1}(A, B, C)$
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_lu}(A, B, \widehat{C}) $
1b	$[C] = \operatorname{symm} \operatorname{lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM_LU_UNB_VAR1}(A, B, C)$
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 $n(B_L) < n(B)$ do
2,3	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \wedge n(B_L) < n(B)$
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	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \land \neg (n(B_L) < n(B))$
1b	$[C] = \operatorname{symm_lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM_LU_UNB_VAR1}(A, B, C)$
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_L has 0 columns, C_L has 0 columns
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
3	while $n(B_L) < n(B)$ do
2,3	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \wedge n(B_L) < n(B)$
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	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \land \neg (n(B_L) < n(B))$
1b	$[C] = \operatorname{symm} \operatorname{lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM_LU_UNB_VAR1}(A, B, C)$
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_L has 0 columns, C_L has 0 columns
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
3	while $n(B_L) < n(B)$ do
2,3	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \land n(B_L) < n(B)$
5a	$ \begin{pmatrix} C_L C_R \end{pmatrix} = \begin{pmatrix} \widehat{C}_L \widehat{C}_R \end{pmatrix} \wedge n(B_L) < n(B) $ $ \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} $ $ \text{where} b_1 \text{ has 1 column}, c_1 \text{ 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	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \land \neg (n(B_L) < n(B))$
1b	$[C] = \operatorname{symm_lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM_LU_UNB_VAR1}(A, B, C)$
1a	$C = \widehat{C}$
4	$B ightarrow \left(B_L \middle B_R ight) , C ightarrow \left(C_L \middle C_R ight)$
	where B_L has 0 columns, C_L has 0 columns
2	$\left \begin{array}{c} C_L C_R \end{array} \right = \left(\widehat{C}_L \widehat{C}_R \right)$
3	while $n(B_L) < n(B)$ do
2,3	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \wedge n(B_L) < n(B)$
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	$\left(C_0 \middle c_1 \middle C_2\right) = \left(AB_0 + \widehat{C}_0 \middle \widehat{c}_1 \middle \widehat{C}_2\right)$
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	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \land \neg (n(B_L) < n(B))$
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Step	Algorithm: $[C] := \text{SYMM_LU_UNB_VAR1}(A, B, C)$
1a	$C = \widehat{C}$
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	where B_L has 0 columns, C_L has 0 columns
2	$\left \begin{array}{c} C_L C_R \end{array} \right = \left(\hat{C}_L \hat{C}_R \right)$
3	while $n(B_L) < n(B)$ do
2,3	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \wedge n(B_L) < n(B)$
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	$\left(C_0 \middle c_1 \middle C_2\right) = \left(AB_0 + \widehat{C}_0 \middle \widehat{c}_1 \middle \widehat{C}_2\right)$
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	$ \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} AB_0 + \widehat{C}_0 Ab_1 + \widehat{c}_1 \widehat{C}_2 \end{pmatrix} $
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
	endwhile
2	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \land \neg (n(B_L) < n(B))$
1b	$[C] = \operatorname{symm_lu}(A, B, \widehat{C})$

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	where B_L has 0 columns, C_L has 0 columns
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
3	while $n(B_L) < n(B)$ do
2,3	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \wedge n(B_L) < n(B)$
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	$\left(C_0 \middle c_1 \middle C_2\right) = \left(AB_0 + \widehat{C}_0 \middle \widehat{c}_1 \middle \widehat{C}_2\right)$
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7	$\left(C_0 \middle c_1 \middle C_2\right) = \left(AB_0 + \widehat{C}_0 \middle Ab_1 + \widehat{c}_1 \middle \widehat{C}_2\right)$
2	$\left(C_L\middle C_R\right) = \left(\widehat{C}_L\middle \widehat{C}_R\right)$
	endwhile
2,3	$\left(C_L \middle C_R\right) = \left(\widehat{C}_L \middle \widehat{C}_R\right) \land \neg (n(B_L) < n(B))$
1b	$[C] = \operatorname{symm_lu}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYMM_LU_UNB_VAR1}(A, B, C)$
	$B \to \begin{pmatrix} B_L B_R \end{pmatrix}$, $C \to \begin{pmatrix} C_L C_R \end{pmatrix}$ where B_L has 0 columns, C_L has 0 columns
	while $n(B_L) < n(B)$ 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:
$$[C] := \text{SYMM_LU_UNB_VAR1}(A, B, C)$$
 $B \to \begin{pmatrix} B_L \middle| B_R \end{pmatrix}$, $C \to \begin{pmatrix} C_L \middle| C_R \end{pmatrix}$

where B_L has 0 columns, C_L has 0 columns

while $n(B_L) < n(B)$ 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

 $c_1 := Ab_1 + c_1$
 $\begin{pmatrix} B_L \middle| B_R \end{pmatrix} \leftarrow \begin{pmatrix} B_0 \middle| b_1 \middle| B_2 \end{pmatrix}$, $\begin{pmatrix} C_L \middle| C_R \end{pmatrix} \leftarrow \begin{pmatrix} C_0 \middle| c_1 \middle| C_2 \end{pmatrix}$

endwhile