$\operatorname{St}\epsilon$	Algorithm: $C := AB + C$ where A is symmetric and stored in the lower triangular part
18	$\{C = \widehat{C} $
4	$B \to \begin{pmatrix} B_L \mid B_R \end{pmatrix}$, $C \to \begin{pmatrix} C_L \mid C_R \end{pmatrix}$ where B_L has 0 columns, C_L has 0 columns
2	$\left\{ \left(\begin{array}{c c} C_L & C_R \end{array} \right) = \left(\begin{array}{c c} \widehat{C}_L & AB_R + \widehat{C}_R \end{array} \right) \right\}$
3	while $n(B_L) < n(B)$ do
2,3	$3 \left\{ \left(C_L \mid C_R \right) = \left(\widehat{C}_L \mid AB_R + \widehat{C}_R \right) \land n(B_L) < n(B) \right\}$
58	$\begin{pmatrix} B_L \mid B_R \end{pmatrix} \to \begin{pmatrix} B_0 \mid b_1 \mid B_2 \end{pmatrix}, \begin{pmatrix} C_L \mid C_R \end{pmatrix} \to \begin{pmatrix} C_0 \mid c_1 \mid C_2 \end{pmatrix}$ where b_1 has 1 column, c_1 has 1 column
6	$\left\{ \left(\begin{array}{ccc} C_0 & c_1 & C_2 \end{array} \right) = \left(\begin{array}{ccc} & \widehat{C}_0 & & \widehat{c}_1 & AB_2 + \widehat{C}_2 \end{array} \right) \right.$
8	$c_1 := Ab_1 + c_1$
7	$\left\{ \left(\begin{array}{cc} C_0 & c_1 & C_2 \end{array} \right) = \left(\begin{array}{cc} \widehat{C}_0 & Ab_1 + \widehat{c}_1 & AB_2 + \widehat{C}_2 \end{array} \right) $
5h	$B \to \left(B_L \middle B_R \right) \leftarrow \left(B_0 \middle b_1 \middle B_2 \right), C \to \left(C_L \middle C_R \right) \leftarrow \left(C_0 \middle c_1 \middle C_2 \right)$
2	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \right\}$
	endwhile
2,3	$3 \left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
1h	$\{C := AB + \widehat{C} $

Step	Algorithm: $C := AB + C$ when	ere A is symmetric and stored in the lower triangular part
1a	{	}
4	where	
2	{	
3	while do	
2,3		}
5a	where	
6		
8		
7		
5b		
2	{	
	endwhile	
2,3		∧¬()
1b	{	}

Step	Algorithm: $C := AB + C$ where A is symmetric and stored in the lower triangular part
1a	${C = \widehat{C}}$
4	where
2	
3	while do
2,3	\(\)
5a	where
6	$\left\{ \right.$
8	
7	igg
5b	
2	
	endwhile
2,3	$\left\{ \begin{array}{ccc} & & & & \\ & & & \\ & & & \\ \end{array} \right.$
1b	$\{C := AB + \widehat{C} $

```
Step
           Algorithm: C := AB + C where A is symmetric and stored in the lower triangular part
           \{C=\widehat{C}
 1a
  4
              where
                                                \left| \widehat{C}_L \right| AB_R + \widehat{C}_R 
  2
  3
           while
                                                     \widehat{C}_L \left[ AB_R + \widehat{C}_R \right] \wedge
                    C_L \mid C_R \mid
 2,3
 5a
                    where
  6
  8
  7
 5b
                                                      \widehat{C}_L \mid AB_R + \widehat{C}_R 
  2
          endwhile
                                                \widehat{C}_L \mid AB_R + \widehat{C}_R \rangle \wedge \neg (
                C_L \mid C_R \mid
 2,3
           \{C:=AB+\widehat{C}
 1b
```

Step	Algorithm: $C := AB + C$ where A is symmetric and stored in the lower triangular part
1a	$\{C = \widehat{C} $
4	where
2	$\left\{ \left(\begin{array}{c c} C_L & C_R \end{array} \right) = \left(\begin{array}{c c} \widehat{C}_L & AB_R + \widehat{C}_R \end{array} \right) $
3	while $n(B_L) < n(B)$ do
2,3	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \wedge n(B_L) < n(B) \right\}$
5a	where
6	$ $ $\{$
8	
7	
5b	
2	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \right. $
	endwhile
2,3	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
1b	$\{C := AB + \widehat{C} $

Step	Algorithm: $C := AB + C$ where A is symmetric and stored in the lower triangular part
1a	${C = \widehat{C}}$
4	$B \to \begin{pmatrix} B_L \mid B_R \end{pmatrix}$, $C \to \begin{pmatrix} C_L \mid C_R \end{pmatrix}$ where B_L has 0 columns, C_L has 0 columns
2	$\left\{ \left(\begin{array}{c c} C_L & C_R \end{array} \right) = \left(\begin{array}{c c} \widehat{C}_L & AB_R + \widehat{C}_R \end{array} \right) $
3	while $n(B_L) < n(B)$ do
2,3	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \land n(B_L) < n(B) \right\}$
5a	where
6	$\left\{ \left\{ \right. \right. \right\}$
8	
7	
5b	
2	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \right. $
	endwhile
2,3	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
1b	$\{C := AB + \widehat{C} $

```
Algorithm: C := AB + C where A is symmetric and stored in the lower triangular part
Step
                \{C=\widehat{C}
  1a
                B \to \left( B_L \middle| B_R \right), C \to \left( C_L \middle| C_R \right)
   4
                 where B_L has 0 columns, C_L has 0 columns \left\{ \left( C_L \middle| C_R \right) = \left( \widehat{C}_L \middle| AB_R + \widehat{C}_R \right) \right\}
   2
                while n(B_L) < n(B) do
   3

\overline{\left( C_L \middle| C_R \right) = \left( \widehat{C}_L \middle| AB_R + \widehat{C}_R \right) \land n(B_L) < n(B)}

 2,3
                          \begin{pmatrix} B_L \mid B_R \end{pmatrix} \rightarrow \begin{pmatrix} B_0 \mid b_1 \mid B_2 \end{pmatrix}, \begin{pmatrix} C_L \mid C_R \end{pmatrix} \rightarrow \begin{pmatrix} C_0 \mid c_1 \mid C_2 \end{pmatrix}
where b_1 has 1 column, c_1 has 1 column
  5a
   6
   8
   7

\begin{bmatrix}
B_L & B_R
\end{bmatrix} \leftarrow \begin{pmatrix} B_0 & b_1 & B_2
\end{pmatrix}, C \rightarrow \begin{pmatrix} C_L & C_R
\end{pmatrix} \leftarrow \begin{pmatrix} C_0 & c_1 & C_2
\end{pmatrix}

\begin{vmatrix} C_R \end{pmatrix} = \begin{pmatrix} \hat{C}_L & AB_R + \hat{C}_R
\end{pmatrix}

  5b
   2
                 endwhile
                                                                           \widehat{C}_L \mid AB_R + \widehat{C}_R \mid \land \neg (n(B_L) < n(B))
                        C_L \mid C_R \rangle =
 2,3
                 \{C:=AB+\widehat{C}
  1b
```

```
Algorithm: C := AB + C where A is symmetric and stored in the lower triangular part
Step
                  \{C = \widehat{C}
   1a
                 B \to \left( B_L \middle| B_R \right), C \to \left( C_L \middle| C_R \right)
    4
                  where B_L has 0 columns, C_L has 0 columns \left\{ \left( C_L \middle| C_R \right) = \left( \widehat{C}_L \middle| AB_R + \widehat{C}_R \right) \right\}
    2
                  while n(B_L) < n(B) do
    3
                                                                         \widehat{C}_L \left[ AB_R + \widehat{C}_R \right] \wedge n(B_L) < n(B)
 2,3

\left(\begin{array}{c|c} B_L \mid B_R \end{array}\right) \to \left(\begin{array}{c|c} B_0 \mid b_1 \mid B_2 \end{array}\right), \left(\begin{array}{c|c} C_L \mid C_R \end{array}\right) \to \left(\begin{array}{c|c} C_0 \mid c_1 \mid C_2 \end{array}\right)

where b_1 has 1 column, c_1 has 1 column
   5a
                                                                                                             \widehat{c}_1 AB_2 + \widehat{C}_2
                                                                                                \widehat{C}_0
                                    C_0 c_1 C_2
    6
    8
    7
                           B \to \left( \begin{array}{c|c} B_L & B_R \end{array} \right) \leftarrow \left( \begin{array}{c|c} B_0 & b_1 & B_2 \end{array} \right), C \to \left( \begin{array}{c|c} C_L & C_R \end{array} \right) \leftarrow \left( \begin{array}{c|c} C_0 & c_1 & C_2 \end{array} \right)
\left( \begin{array}{c|c} C_L & C_R \end{array} \right) = \left( \begin{array}{c|c} \widehat{C}_L & AB_R + \widehat{C}_R \end{array} \right)
  5b
    2
                  endwhile
                                                                                  \widehat{C}_L \mid AB_R + \widehat{C}_R \mid \land \neg (n(B_L) < n(B))
                          C_L \mid C_R \rangle =
 2,3
                  \underline{\{C := AB + \widehat{C}}
  1b
```

Step	Algorithm: $C := AB + C$ where A is symmetric and stored in the lower triangular part
1a	${C = \widehat{C}}$
4	$B \to \begin{pmatrix} B_L \mid B_R \end{pmatrix}$, $C \to \begin{pmatrix} C_L \mid C_R \end{pmatrix}$ where B_L has 0 columns, C_L has 0 columns
2	$\left\{ \left(\begin{array}{c c} C_L & G \end{array} \right) = \left(\begin{array}{c c} \widehat{C}_L & AB_R + \widehat{C}_R \end{array} \right) $
3	while $n(B_L) < n(B)$ do
2,3	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \land n(B_L) < n(B) \right\}$
5a	$\begin{pmatrix} B_L \mid B_R \end{pmatrix} \to \begin{pmatrix} B_0 \mid b_1 \mid B_2 \end{pmatrix}, \begin{pmatrix} C_L \mid C_R \end{pmatrix} \to \begin{pmatrix} C_0 \mid c_1 \mid C_2 \end{pmatrix}$ where b_1 has 1 column, c_1 has 1 column
6	$\left\{ \left(\begin{array}{ccc} C_0 & c_1 & C_2 \end{array} \right) = \left(\begin{array}{ccc} \widehat{C}_0 & \widehat{c}_1 & AB_2 + \widehat{C}_2 \end{array} \right) $
8	
7	$\left\{ \left(\begin{array}{cc} C_0 & c_1 & C_2 \end{array} \right) = \left(\begin{array}{cc} \widehat{C}_0 & Ab_1 + \widehat{c}_1 & AB_2 + \widehat{C}_2 \end{array} \right) $
5b	$B \to \left(B_L \middle B_R \right) \leftarrow \left(B_0 \middle b_1 \middle B_2 \right), C \to \left(C_L \middle C_R \right) \leftarrow \left(C_0 \middle c_1 \middle C_2 \right)$
2	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \right.$
	endwhile
2,3	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
1b	$\{C := AB + \widehat{C} $

Step	Algorithm: $C := AB + C$ where A is symmetric and stored in the lower triangular part
1a	${C = \widehat{C}}$
4	$B \to \begin{pmatrix} B_L \mid B_R \end{pmatrix}$, $C \to \begin{pmatrix} C_L \mid C_R \end{pmatrix}$ where B_L has 0 columns, C_L has 0 columns
2	$\left\{ \left(\begin{array}{c c} C_L & C_R \end{array} \right) = \left(\begin{array}{c c} \widehat{C}_L & AB_R + \widehat{C}_R \end{array} \right) \right\}$
3	while $n(B_L) < n(B)$ do
2,3	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \land n(B_L) < n(B) \right\}$
5a	$\begin{pmatrix} B_L \mid B_R \end{pmatrix} \to \begin{pmatrix} B_0 \mid b_1 \mid B_2 \end{pmatrix}, \begin{pmatrix} C_L \mid C_R \end{pmatrix} \to \begin{pmatrix} C_0 \mid c_1 \mid C_2 \end{pmatrix}$ where b_1 has 1 column, c_1 has 1 column
6	$\left\{ \left(\begin{array}{ccc} C_0 & c_1 & C_2 \end{array} \right) = \left(\begin{array}{ccc} \widehat{C}_0 & \widehat{c}_1 & AB_2 + \widehat{C}_2 \end{array} \right) $
8	$c_1 := Ab_1 + c_1$
7	$\left\{ \left(\begin{array}{cc} C_0 & c_1 & C_2 \end{array} \right) = \left(\begin{array}{cc} \widehat{C}_0 & Ab_1 + \widehat{c}_1 & AB_2 + \widehat{C}_2 \end{array} \right) $
5b	$B \to \left(B_L \middle B_R \right) \leftarrow \left(B_0 \middle b_1 \middle B_2 \right), C \to \left(C_L \middle C_R \right) \leftarrow \left(C_0 \middle c_1 \middle C_2 \right)$
2	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \right.$
	endwhile
2,3	$\left\{ \left(C_L \middle C_R \right) = \left(\widehat{C}_L \middle AB_R + \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
1b	$\{C := AB + \widehat{C} $

Algorithm: $C := AB + C$ where A is symmetric and stored in the lower triangular part
$B \to \begin{pmatrix} B_L \mid B_R \end{pmatrix}$, $C \to \begin{pmatrix} C_L \mid C_R \end{pmatrix}$ where B_L has 0 columns, C_L has 0 columns
while $n(B_L) < n(B)$ do
$\begin{pmatrix} B_L \mid B_R \end{pmatrix} \to \begin{pmatrix} B_0 \mid b_1 \mid B_2 \end{pmatrix}, \begin{pmatrix} C_L \mid C_R \end{pmatrix} \to \begin{pmatrix} C_0 \mid c_1 \mid C_2 \end{pmatrix}$ where b_1 has 1 column, c_1 has 1 column
$c_1 := Ab_1 + c_1$
$B \to \left(\begin{array}{c c} B_L & B_R \end{array} \right) \leftarrow \left(\begin{array}{c c} B_0 & b_1 & B_2 \end{array} \right), C \to \left(\begin{array}{c c} C_L & C_R \end{array} \right) \leftarrow \left(\begin{array}{c c} C_0 & c_1 & C_2 \end{array} \right)$
endwhile

Algorithm:
$$C := AB + C$$
 where A is symmetric and stored in the lower triangular part $B \to \begin{pmatrix} B_L \mid B_R \end{pmatrix}$, $C \to \begin{pmatrix} C_L \mid C_R \end{pmatrix}$ where B_L has 0 columns, C_L has 0 columns while $n(B_L) < n(B)$ do $\begin{pmatrix} B_L \mid B_R \end{pmatrix} \to \begin{pmatrix} B_0 \mid b_1 \mid B_2 \end{pmatrix}$, $\begin{pmatrix} C_L \mid C_R \end{pmatrix} \to \begin{pmatrix} C_0 \mid c_1 \mid C_2 \end{pmatrix}$ where b_1 has 1 column, c_1 has 1 column $c_1 := Ab_1 + c_1$ $B \to \begin{pmatrix} B_L \mid B_R \end{pmatrix} \leftarrow \begin{pmatrix} B_0 \mid b_1 \mid B_2 \end{pmatrix}$, $C \to \begin{pmatrix} C_L \mid C_R \end{pmatrix} \leftarrow \begin{pmatrix} C_0 \mid c_1 \mid C_2 \end{pmatrix}$ endwhile