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} AB_L + \widehat{C}_L & \widehat{C}_R \end{array} \right) $
3	while $n(B_L) < n(B)$ do
2,3	$\left\{  \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \land n(B_L) < n(B) \right\}$
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} AB_0 + \widehat{C}_0 & & \widehat{c}_1 & & \widehat{C}_2 \end{array} \right) $
8	$c_1 := Ab_1 + c_1$
7	$\left\{ \left( \begin{array}{cc} C_0 & c_1 & C_2 \end{array} \right) = \left( \begin{array}{cc} AB_0 + \widehat{C}_0 & Ab_1 + \widehat{c}_1 \end{array} \right) \right\}$
5b	$B \to \left( \begin{array}{c c} B_L & B_R \end{array} \right) \leftarrow \left( \begin{array}{c c} B_0 & b_1 & B_2 \end{array} \right), C \to \left( \begin{array}{c c} C_L & C_R \end{array} \right) \leftarrow \left( \begin{array}{c c} C_0 & c_1 & C_2 \end{array} \right)$
2	$\left\{  \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \right.$
	endwhile
2,3	$\left\{ \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
1b	$\{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	$\left\{ \begin{array}{c} \wedge \end{array} \right\}$
5a	where
6	
8	
7	
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
1a	${C = \hat{C}}$
4	where
2	$\left\{ \left( \begin{array}{c c} C_L & C_R \end{array} \right) = \left( \begin{array}{c c} AB_L + \widehat{C}_L & \widehat{C}_R \end{array} \right) $
3	while do
2,3	$\left\{  \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \wedge \right.$
5a	where
6	
8	
7	
5b	
2	$\left\{  \left( \begin{array}{c c} C_L & C_R \end{array} \right) = \left( \begin{array}{c c} AB_L + \widehat{C}_L & \widehat{C}_R \end{array} \right) $
	endwhile
2,3	$\left\{ \left( \begin{array}{c c} C_L & C_R \end{array} \right) = \left( \begin{array}{c c} AB_L + \widehat{C}_L & \widehat{C}_R \end{array} \right) \land \neg ( $
1b	$\left\{ C = AB + \widehat{C} \right\}$

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} AB_L + \widehat{C}_L & \widehat{C}_R \end{array} \right) $
3	while $n(B_L) < n(B)$ do
2,3	$\left\{ \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \wedge n(B_L) < n(B) \right\}$
5a	where
6	
8	
7	$\bigg  \Big\{$
5b	
2	$\left\{  \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \right.$
	endwhile
2,3	$\left\{ \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
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	$B \to \begin{pmatrix} B_L & B_R \end{pmatrix}$ , $C \to \begin{pmatrix} C_L & C_R \end{pmatrix}$ where $B_L$ has 0 columns, $C_L$ has 0 columns
2	$\left\{ \left( \begin{array}{c c} C_L & C_R \end{array} \right) = \left( \begin{array}{c c} AB_L + \widehat{C}_L & \widehat{C}_R \end{array} \right) $
3	while $n(B_L) < n(B)$ do
2,3	$\left\{  \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \land n(B_L) < n(B) \right\}$
5a	where
6	
8	
7	
5b	
2	$\left\{  \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \right.$
	endwhile
2,3	$\left\{ \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
1b	$\left\{ C = AB + \widehat{C} \right\}$

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

\left(\begin{array}{c|c} C_L & C_R \end{array}\right) = \left(\begin{array}{c|c} AB_L + \widehat{C}_L & \widehat{C}_R \end{array}\right) \wedge n(B_L) < n(B)

 2,3

\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
  5a
   6
   8
   7
                        B \to \begin{pmatrix} B_L & B_R \end{pmatrix} \leftarrow \begin{pmatrix} B_0 & b_1 & B_2 \end{pmatrix}, C \to \begin{pmatrix} C_L & C_R \end{pmatrix} \leftarrow \begin{pmatrix} C_0 & c_1 & C_2 \end{pmatrix}\begin{pmatrix} C_L & C_R \end{pmatrix} = \begin{pmatrix} AB_L + \widehat{C}_L & \widehat{C}_R \end{pmatrix}
  5b
   2
                endwhile
                       C_L \mid C_R \rangle = \left( AB_L + \widehat{C}_L \mid \widehat{C}_R \right) \land \neg (n(B_L) < n(B))
 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	$B \to \begin{pmatrix} B_L \mid B_R \end{pmatrix}$ , $C \to \begin{pmatrix} C_L \mid C_R \end{pmatrix}$ 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} AB_L + \widehat{C}_L & \widehat{C}_R \end{array} \right) $
3	while $n(B_L) < n(B)$ do
2,3	$\left\{ \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \land n(B_L) < n(B) \right\}$
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} AB_0 + \widehat{C}_0 & & \widehat{c}_1 & & \widehat{C}_2 \end{array} \right) $
8	
7	
5b	$B \to \begin{pmatrix} B_L \mid B_R \end{pmatrix} \leftarrow \begin{pmatrix} B_0 \mid b_1 \mid B_2 \end{pmatrix}, C \to \begin{pmatrix} C_L \mid C_R \end{pmatrix} \leftarrow \begin{pmatrix} C_0 \mid c_1 \mid C_2 \end{pmatrix}$ $\begin{cases} \begin{pmatrix} C_L \mid C_R \end{pmatrix} = \begin{pmatrix} AB_L + \widehat{C}_L \mid & \widehat{C}_R \end{pmatrix}$
2	$\left\{  \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \right.$
	endwhile
2,3	$\left\{ \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
1b	$\left\{ C = AB + \widehat{C} \right\}$

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 & \widehat{C}_R \end{array} \right) = \left( \begin{array}{c c} AB_L + \widehat{C}_L & \widehat{C}_R \end{array} \right) $
3	while $n(B_L) < n(B)$ do
2,3	$\left\{ \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \land n(B_L) < n(B) \right\}$
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} AB_0 + \widehat{C}_0 & & \widehat{c}_1 & & \widehat{C}_2 \end{array} \right) $
8	
7	$\left\{ \left( \begin{array}{cc} C_0 & c_1 & C_2 \end{array} \right) = \left( \begin{array}{cc} AB_0 + \widehat{C}_0 & Ab_1 + \widehat{c}_1 \end{array} \right) \right\}$
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	$\left\{ \begin{array}{c c} C_L & C_R \end{array} \right) = \left( \begin{array}{c c} AB_L + \widehat{C}_L & \widehat{C}_R \end{array} \right)$
	endwhile
2,3	$\left\{ \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
1b	$\left\{ C = AB + \widehat{C} \right\}$

Step	Algorithm: $C := AB + C$ where A is symmetric and stored in the lower triangular part
1a	$\left\{ C = \widehat{C} \right\}$
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} AB_L + \widehat{C}_L & \widehat{C}_R \end{array} \right) $
3	while $n(B_L) < n(B)$ do
2,3	$\left\{  \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \land n(B_L) < n(B) \right\}$
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} AB_0 + \widehat{C}_0 & & \widehat{c}_1 & & \widehat{C}_2 \end{array} \right) $
8	$c_1 := Ab_1 + c_1$
7	$\left\{ \left( \begin{array}{cc} C_0 & c_1 & C_2 \end{array} \right) = \left( \begin{array}{cc} AB_0 + \widehat{C}_0 & Ab_1 + \widehat{c}_1 \end{array} \right) \right\}$
5b	$B \to \left( \begin{array}{c c} B_L & B_R \end{array} \right) \leftarrow \left( \begin{array}{c c} B_0 & b_1 & B_2 \end{array} \right), C \to \left( \begin{array}{c c} C_L & C_R \end{array} \right) \leftarrow \left( \begin{array}{c c} C_0 & c_1 & C_2 \end{array} \right)$
2	$\left\{  \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \right.$
	endwhile
2,3	$\left\{ \left( C_L \middle  C_R \right) = \left( AB_L + \widehat{C}_L \middle  \qquad \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
1b	$\left\{ C = AB + \widehat{C} \right\}$

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