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

Step	Algorithm: $C := AB + C$
1a	{
4	where
2	
3	while do
2,3	
5a	where
6	
8	
7	
5b	
2	
	endwhile
2,3	$\left \left\{ \begin{array}{cc} & & & \\ & & & \\ \end{array} \right. $
1b	{

Step	Algorithm: $C := AB + C$
1a	$\{C = \widehat{C} $
4	where
2	
3	while do
2,3	\(\)
5a	where
6	
8	
7	
5b	
2	
	endwhile
2,3	$\left \left\{ \begin{array}{cc} & & & \\ & & & \\ \end{array} \right. $
1b	$\left\{ C = AB + \hat{C} \right\}$

```
Algorithm: C := AB + C
Step
               \{C=\widehat{C}
  1a
   4
                    where

\left\{ \left( C_L \middle| C_R \right) = \left( AB_L + \widehat{C}_L \middle| \widehat{C}_R \right) \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) \wedge

 2,3
  5a
                             where
   6
   8
   7
  5b
                               C_L C_R = (AB_L + \widehat{C}_L \widehat{C}_R)
   2
               endwhile

\overline{\left\{ \left( C_L \middle| C_R \right) = \left( AB_L + \widehat{C}_L \middle| \widehat{C}_R \right) \land \neg (C_R) \right\}}

 2,3
                \left\{ C = AB + \widehat{C} \right)
  1b
```

Step	Algorithm: $C := AB + C$
1a	$\left \ \left\{ C = \widehat{C} \right. \right. \right $
4	
_	where
2	$\left\{ \left(C_L \middle C_R \right) = \left(AB_L + \widehat{C}_L \middle \widehat{C}_R \right) \right\}$
3	while $n(B_L) < n(B)$ do
2,3	$\left\{ \left(C_L \middle C_R \right) = \left(AB_L + \widehat{C}_L \middle \widehat{C}_R \right) \wedge n(B_L) < n(B) \right\}$
5a	
	where
6	$\left\{ \left\{ \right. \right. \right.$
8	
7	
5b	
2	$\left\{ \left. \left(\left. C_L \right C_R \right) = \left(\left. AB_L + \widehat{C}_L \right \widehat{C}_R \right) \right. \right\}$
	endwhile
2,3	$\left\{ \left(C_L \middle C_R \right) = \left(AB_L + \widehat{C}_L \middle \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
1b	$\left\{ C = AB + \widehat{C} \right\}$

Step	Algorithm: $C := AB + C$
1a	$\left \left\{ C = \widehat{C} \right. \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	$\left\{ \left(C_L \middle C_R \right) = \left(AB_L + \widehat{C}_L \middle \widehat{C}_R \right) \right\}$
3	while $n(B_L) < n(B)$ do
2,3	$\left\{ \left(C_L \middle C_R \right) = \left(AB_L + \widehat{C}_L \middle \widehat{C}_R \right) \land n(B_L) < n(B) \right\}$
5a	where
6	ig
8	
7	
5b	
2	$\left\{ \left(C_L \middle C_R \right) = \left(AB_L + \widehat{C}_L \middle \widehat{C}_R \right) \right. $
	endwhile
2,3	$\left\{ \left(C_L \middle C_R \right) = \left(AB_L + \widehat{C}_L \middle \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}$
1b	$\left\{ C = AB + \widehat{C} \right\}$

```
Algorithm: C := AB + C
Step
  1a
                  \{C=\widehat{C}
                  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( \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)
    2
                   while n(B_L) < n(B) do
                                \left( C_L \middle| C_R \right) = \left( AB_L + \widehat{C}_L \middle| \widehat{C}_R \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
                   \left\{ \left( \left. C_L \right| C_R \right) = \left( \left. AB_L + \widehat{C}_L \right| \widehat{C}_R \right) \land \neg (n(B_L) < n(B)) \right\}
  2,3
                   \{C = AB + \widehat{C}\}
  1b
```

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

Algorithm:
$$C := AB + C$$

$$B \to \begin{pmatrix} B_L \mid B_R \end{pmatrix}, C \to \begin{pmatrix} C_L \mid C_R \end{pmatrix}$$
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