Step	Algorithm: $B = LB$
1a	${B = \widehat{B}}$
4	$L \to \left(\begin{array}{c c} L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR} \end{array}\right), B \to \left(\begin{array}{c c} B_T \\ \hline B_B \end{array}\right)$ where $L_{BR}$ is $0 \times 0$ , $B_B$ has 0 rows
2	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \right\}$
3	while $m(L_{BR}) < m(L)$ do
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \land m(L_{BR}) < m(L) \right\}$
5a	$ \begin{pmatrix} L_{BL} \mid L_{BR} \end{pmatrix} \qquad  \begin{pmatrix} \overline{L_{20}} \mid l_{21} \mid L_{22} \end{pmatrix} \qquad  \begin{pmatrix} B_B \end{pmatrix} \qquad  \begin{pmatrix} \overline{B_2} \end{pmatrix} $ where $\lambda_{11}$ is $1 \times 1$ , $b_1$ has 1 row
6	$ \left\{  \begin{pmatrix} B_0 \\ b_1^T \\ B_2 \end{pmatrix} = \begin{pmatrix} \widehat{b}_0 \\ \widehat{b}_1^T \\ L_{20}\widehat{B}_0 + l_{21}\widehat{b}_1^T + L_{22}\widehat{B}_2 \end{pmatrix} \right\} $
8	$b_1^T := l_{10}^T B_0 + \lambda_{11} b_1^T$
7	$ \left\{ \begin{pmatrix} B_0 \\ b_1^T \\ B_2 \end{pmatrix} = \begin{pmatrix} \widehat{B}_0 \\ l_{10}^T \widehat{B}_0 + \lambda_{11} \widehat{b}_1^T \\ l_{20} B_0 + l_{21} b_1^T + l_{22} \widehat{B}_2 \end{pmatrix} \right\} $
5b	$ \left(\begin{array}{c c c} L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c c} L_{00} & l_{01} & L_{02} \\ \hline l_{10}^T & \lambda_{11} & l_{12}^T \\ L_{20} & l_{21} & L_{22} \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c c} B_0 \\ \hline b_1^T \\ B_2 \end{array}\right) $
2	$\left\{ \qquad \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \right\}$
	endwhile
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \land \neg (m(L_{BR}) < m(L)) \right\}$
1b	$\{B = L\widehat{B}\}$

Step	Algorithm: $B = LB$
1a	{
4	where
2	
3	while do
2,3	
5a	where
6	
8	
7	
5b	
2	
	endwhile
2,3	$\left\{ \qquad \qquad \land \neg ( \qquad ) \right.$
1b	{

Step	Algorithm: $B = LB$	
1a	$\{B = \hat{B}\}$	}
4	where	
2		
3	while do	
2,3		
5a	where	
6		
8		
7		
5b		
2		
	endwhile	
2,3	$ \left\{ \begin{array}{c} \wedge \neg ( \end{array} \right. )$	
1b	${B = L\widehat{B}}$	}

Step	Algorithm: $B = LB$
1a	${B = \widehat{B}}$
4	where
2	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \right\}$
3	while do
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \wedge \right\}$
5a	where
6	
8	
7	
5b	
2	$\left\{ \qquad \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) $
	endwhile
2,3	$ \left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \land \neg ( ) \right\} $
1b	$\{B = L\widehat{B}\}$

Step	Algorithm: $B = LB$
1a	${B = \widehat{B}}$
4	where
2	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \right\}$
3	while $m(L_{BR}) < m(L)$ do
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \wedge m(L_{BR}) < m(L) \right\}$
5a	where
6	
8	
7	
5b	
2	$\left\{ \qquad \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) $
	endwhile
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \land \neg (m(L_{BR}) < m(L)) \right\}$
1b	${B = L\widehat{B}}$

Step	Algorithm: $B = LB$	
l 1a	$\{B=\widehat{B}$	}
4	$L \to \left(\begin{array}{c c} L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR} \end{array}\right), B \to \left(\begin{array}{c c} B_T \\ \hline B_B \end{array}\right)$ where $L_{BR}$ is $0 \times 0$ , $B_B$ has 0 rows	
2	where $L_{BR}$ is $0 \times 0$ , $B_B$ has 0 rows $ \left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \right\} $	
3	while $m(L_{BR}) < m(L)$ do	
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \wedge m(L_{BR}) < m(L) \right\}$	$\left. \right\}$
5a	where	
6		$\left. \begin{array}{c} - \\ \end{array} \right\}$
8		
7		$\left. \begin{array}{c} - \\ \end{array} \right\}$
5b		
2	$\left\{ \qquad \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \right.$	
	endwhile	
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \land \neg (m(L_{BR}) < m(L)) \right\}$	
1b	$\{B = L\widehat{B}$	}

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1a	$\{B = \widehat{B}\}$
4	$L \to \left(\begin{array}{c c} L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR} \end{array}\right), B \to \left(\begin{array}{c c} B_T \\ \hline B_B \end{array}\right)$ where $L_{BR}$ is $0 \times 0$ , $B_B$ has 0 rows
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5a	$ \begin{pmatrix} L_{TL} & L_{TR} \\ L_{BL} & L_{BR} \end{pmatrix} \rightarrow \begin{pmatrix} L_{00} & l_{01} & L_{02} \\ l_{10}^T & \lambda_{11} & l_{12}^T \\ L_{20} & l_{21} & L_{22} \end{pmatrix}, \begin{pmatrix} B_T \\ B_B \end{pmatrix} \rightarrow \begin{pmatrix} B_0 \\ b_1^T \\ B_2 \end{pmatrix} $ where $\lambda_{11}$ is $1 \times 1$ , $b_1$ has 1 row
6	
8	
7	
5b	$ \left(\begin{array}{c c c} L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c c} L_{00} & l_{01} & L_{02} \\ \hline l_{10}^T & \lambda_{11} & l_{12}^T \\ L_{20} & l_{21} & L_{22} \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c c} B_0 \\ \hline b_1^T \\ B_2 \end{array}\right) $
2	$\left\{ \qquad \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) $
	endwhile
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \land \neg (m(L_{BR}) < m(L)) \right\}$
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4	$L \to \left(\begin{array}{c c} L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR} \end{array}\right), B \to \left(\begin{array}{c c} B_T \\ \hline B_B \end{array}\right)$ where $L_{BR}$ is $0 \times 0$ , $B_B$ has 0 rows
2	$ \left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \right\} $
3	while $m(L_{BR}) < m(L)$ do
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \land m(L_{BR}) < m(L) \right\}$
5a	$ \begin{pmatrix} L_{TL} & L_{TR} \\ L_{BL} & L_{BR} \end{pmatrix} \rightarrow \begin{pmatrix} L_{00} & l_{01} & L_{02} \\ l_{10}^T & \lambda_{11} & l_{12}^T \\ L_{20} & l_{21} & L_{22} \end{pmatrix}, \begin{pmatrix} B_T \\ B_B \end{pmatrix} \rightarrow \begin{pmatrix} B_0 \\ b_1^T \\ B_2 \end{pmatrix} $ where $\lambda_{11}$ is $1 \times 1$ , $b_1$ has 1 row
6	$ \left\{  \begin{pmatrix} B_0 \\ b_1^T \\ B_2 \end{pmatrix} = \begin{pmatrix} \widehat{B}_0 \\ \widehat{b}_1^T \\ L_{20}\widehat{B}_0 + l_{21}\widehat{b}_1^T + L_{22}\widehat{B}_2 \end{pmatrix} $
8	
7	
5b	$ \left(\begin{array}{c c c} L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c c} L_{00} & l_{01} & L_{02} \\ \hline l_{10}^T & \lambda_{11} & l_{12}^T \\ L_{20} & l_{21} & L_{22} \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c c} B_0 \\ \hline b_1^T \\ B_2 \end{array}\right) $
2	$\left\{ \qquad \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) $
	endwhile
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Step	Algorithm: $B = LB$
1a	$\{B = \widehat{B}\}$
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2	$ \left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \right\} $
3	while $m(L_{BR}) < m(L)$ do
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \land m(L_{BR}) < m(L) \right\}$
5a	$\begin{pmatrix} L_{BL} \mid L_{BR} \end{pmatrix} \begin{pmatrix} \overline{L_{20} \mid l_{21} \mid L_{22}} \end{pmatrix} \begin{pmatrix} B_B \end{pmatrix} \begin{pmatrix} \overline{B_2} \end{pmatrix}$ where $\lambda_{11}$ is $1 \times 1$ $h_1$ has $1$ row
6	$ \begin{cases} \begin{pmatrix} B_0 \\ b_1^T \\ B_2 \end{pmatrix} = \begin{pmatrix} \widehat{B}_0 \\ \widehat{b}_1^T \\ L_{20}\widehat{B}_0 + l_{21}\widehat{b}_1^T + L_{22}\widehat{B}_2 \end{pmatrix} $
8	
7	$ \left\{ \begin{pmatrix} B_0 \\ b_1^T \\ B_2 \end{pmatrix} = \begin{pmatrix} \widehat{B}_0 \\ l_{10}^T \widehat{B}_0 + \lambda_{11} \widehat{b}_1^T \\ L_{20} B_0 + l_{21} b_1^T + L_{22} \widehat{B}_2 \end{pmatrix} \right\} $
5b	$ \left(\begin{array}{c c c} L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c c} L_{00} & l_{01} & L_{02} \\ \hline l_{10}^T & \lambda_{11} & l_{12}^T \\ L_{20} & l_{21} & L_{22} \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c c} B_0 \\ \hline b_1^T \\ B_2 \end{array}\right) $
2	$\left\{ \qquad \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) $
	endwhile
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \land \neg (m(L_{BR}) < m(L)) \right\}$
1b	$\{B = L\widehat{B}\}$

Step	Algorithm: $B = LB$
1a	${B = \widehat{B}}$
4	$L \to \begin{pmatrix} L_{TL} & L_{TR} \\ L_{BL} & L_{BR} \end{pmatrix}, B \to \begin{pmatrix} B_T \\ B_B \end{pmatrix}$ where $L_{BR}$ is $0 \times 0$ , $B_B$ has 0 rows
2	$ \left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \right\} $
3	while $m(L_{BR}) < m(L)$ do
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \land m(L_{BR}) < m(L) \right\}$
5a	$ \left(\begin{array}{c c}L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR}\end{array}\right) \rightarrow \left(\begin{array}{c c}L_{00} & l_{01} & L_{02} \\ \hline l_{10}^T & \lambda_{11} & l_{12}^T \\ \hline L_{20} & l_{21} & L_{22}\end{array}\right), \left(\begin{array}{c}B_T \\ \hline B_B\end{array}\right) \rightarrow \left(\begin{array}{c}B_0 \\ \hline b_1^T \\ \hline B_2\end{array}\right) $ where $\lambda_{11}$ is $1 \times 1$ , $b_1$ has 1 row
6	$ \left\{ \begin{array}{c} \begin{pmatrix} B_0 \\ b_1^T \\ B_2 \end{pmatrix} = \begin{pmatrix} \widehat{B}_0 \\ \widehat{b}_1^T \\ L_{20}\widehat{B}_0 + l_{21}\widehat{b}_1^T + L_{22}\widehat{B}_2 \end{pmatrix} \right\} $
8	$b_1^T := l_{10}^T B_0 + \lambda_{11} b_1^T$
7	$ \left\{ \begin{pmatrix} B_0 \\ b_1^T \\ B_2 \end{pmatrix} = \begin{pmatrix} \widehat{B}_0 \\ l_{10}^T \widehat{B}_0 + \lambda_{11} \widehat{b}_1^T \\ L_{20} B_0 + l_{21} b_1^T + L_{22} \widehat{B}_2 \end{pmatrix} \right\} $
5b	$ \left(\begin{array}{c c c} L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c c} L_{00} & l_{01} & L_{02} \\ \hline l_{10}^T & \lambda_{11} & l_{12}^T \\ L_{20} & l_{21} & L_{22} \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c c} B_0 \\ \hline b_1^T \\ B_2 \end{array}\right) $
2	$\left\{ \qquad \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \right\}$
	endwhile
2,3	$\left\{ \left( \frac{B_T}{B_B} \right) = \left( \frac{\widehat{B}_T}{L_{BL}\widehat{B}_T + L_{BR}\widehat{B}_B} \right) \land \neg (m(L_{BR}) < m(L)) \right\}$
1b	$\{B = L\widehat{B}\}$

Algorithm: B = LB

$$L o \left( egin{array}{c|c} L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR} \end{array} 
ight) \, , \, B o \left( egin{array}{c|c} B_T \\ \hline B_B \end{array} 
ight)$$

where  $L_{BR}$  is  $0 \times 0$ ,  $B_B$  has 0 rows

while  $m(L_{BR}) < m(L)$  do

$$\left(\begin{array}{c|c|c} L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR} \end{array}\right) \to \left(\begin{array}{c|c|c} L_{00} & l_{01} & L_{02} \\ \hline l_{10}^T & \lambda_{11} & l_{12}^T \\ \hline L_{20} & l_{21} & L_{22} \end{array}\right) , \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \to \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ \hline B_2 \end{array}\right)$$

where  $\lambda_{11}$  is  $1 \times 1$ ,  $b_1$  has 1 row

$$b_1^T := l_{10}^T B_0 + \lambda_{11} b_1^T$$

$$\left(\begin{array}{c|c|c} L_{TL} & L_{TR} \\ \hline L_{BL} & L_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c|c|c} L_{00} & l_{01} & L_{02} \\ \hline l_{10}^T & \lambda_{11} & l_{12}^T \\ L_{20} & l_{21} & L_{22} \end{array}\right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array}\right) \leftarrow \left(\begin{array}{c|c} B_0 \\ \hline b_1^T \\ B_2 \end{array}\right)$$

endwhile