Step	Algorithm: $y := Ax + y$ (A symmetric stored in lower triangular part)
1a	$\{y = \widehat{y}\}$
4	$A \to \begin{pmatrix} A_{TL} & A_{TR} \\ A_{BL} & A_{BR} \end{pmatrix}, x \to \begin{pmatrix} x_T \\ x_B \end{pmatrix}, y \to \begin{pmatrix} y_T \\ y_B \end{pmatrix}$ where A_{TL} is 0×0 , x_T has 0 rows, y_T has 0 rows
2	$\left\{ \begin{pmatrix} y_T \\ y_B \end{pmatrix} = \begin{pmatrix} A_{TL}x_T + & \widehat{y}_T \\ A_{BL}x_T + & \widehat{y}_B \end{pmatrix} \right\}$
3	while $m(A_{TL}) < m(A)$ do
2,3	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \land m(A_{TL}) < m(A) \end{array} \right\}$
5a	$ \left(\begin{array}{c c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \rightarrow \left(\begin{array}{c c} A_{00} & a_{01} & A_{02} \\ \hline a_{10}^T & \alpha_{11} & a_{12}^T \\ A_{20} & a_{21} & A_{22} \end{array}\right), \left(\begin{array}{c} x_T \\ x_B \end{array}\right) \rightarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ x_2 \end{array}\right), \left(\begin{array}{c} y_T \\ y_B \end{array}\right) \rightarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) $ where α_{11} is 1×1 , χ_1 has 1 row, ψ_1 has 1 row
6	$ \begin{cases} \begin{pmatrix} y_0 \\ \psi_1 \\ y_2 \end{pmatrix} = \begin{pmatrix} A_{00}x_0 + & \widehat{y}_0 \\ a_{10}^T x_0 + & \widehat{\psi}_1 \\ A_{20}x_0 + & \widehat{y}_2 \end{pmatrix} $
8	$y_0 := \chi_1 (a_{10}^T)^T + y_0$ $\psi_1 := \alpha_{11} \chi_1 + \psi_1$ $y_2 := \chi_1 a_{21} + y_2$
7	$ \begin{cases} \begin{pmatrix} y_0 \\ \psi_1 \\ y_2 \end{pmatrix} = \begin{pmatrix} A_{00}x_0 + \chi_1(a_{10}^T)^T + & \widehat{y}_0 \\ a_{10}^T x_0 + \alpha_{11}\chi_1 + & \widehat{\psi}_1 \\ A_{20}x_0 + \chi_1 a_{21} + & \widehat{y}_2 \end{pmatrix} $
5b	$ \left(\begin{array}{c c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c} A_{00} & a_{01} & A_{02} \\ a_{10}^T & \alpha_{11} & a_{12}^T \\ \hline A_{20} & a_{21} & A_{22} \end{array}\right), \left(\begin{array}{c} x_T \\ x_B \end{array}\right) \leftarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ x_2 \end{array}\right), \left(\begin{array}{c} y_T \\ y_B \end{array}\right) \leftarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) $
2	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \qquad \widehat{y}_T}{A_{BL}x_T + \qquad \widehat{y}_B}\right) \end{array} \right\}$
	endwhile
2,3	$\left\{ \begin{pmatrix} y_T \\ y_B \end{pmatrix} = \begin{pmatrix} A_{TL}x_T + & \widehat{y}_T \\ A_{BL}x_T + & \widehat{y}_B \end{pmatrix} \land \neg (m(A_{TL}) < m(A)) \right\}$
1b	$\{y = Ax + \widehat{y}\}$

Step	Algorithm: $y := Ax + y$ (A symmetric stored in lower triangular part)
1a	{
4	
	where
2	
3	while do
2,3	$\left\{ \begin{array}{c} \wedge \end{array} \right.$
5a	
	where
0	
6	
8	
7	
5b	
30	
2	
	endwhile
0.0	
2,3	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
1b	{

Step	Algorithm: $y := Ax + y$ (A symmetric stored in lower triangular part)	
1a	$\{y=\widehat{y}$	
4	where	
2		
3	while do	
2,3		
5a		
	where (1
6		
8		
7		
5b		
2		
	endwhile	
2,3	$\left \begin{array}{c} \\ \\ \end{array} \right. \wedge \neg (\hspace{1cm})$	
1b	$\{y = Ax + \widehat{y}\}$	

Step	Algorithm: $y := Ax + y$ (A symmetric stored in lower triangular part)
1a	$\{y = \widehat{y} $
4	where
2	$\left\{ \begin{pmatrix} \frac{y_T}{y_B} \end{pmatrix} = \begin{pmatrix} \frac{A_{TL}x_T + & \widehat{y}_T}{A_{BL}x_T + & \widehat{y}_B} \end{pmatrix} \right\}$
3	while do
2,3	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \qquad \widehat{y}_T}{A_{BL}x_T + \qquad \widehat{y}_B}\right) \wedge \end{array} \right\}$
5a	where
6	
8	
7	
5b	
2	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \qquad \widehat{y}_T}{A_{BL}x_T + \qquad \widehat{y}_B}\right) \end{array} \right\}$
	endwhile
2,3	$ \left\{ \begin{pmatrix} \frac{y_T}{y_B} \end{pmatrix} = \begin{pmatrix} \frac{A_{TL}x_T + & \widehat{y}_T}{A_{BL}x_T + & \widehat{y}_B} \end{pmatrix} \land \neg () \right\} $
1b	$\left \{ y = Ax + \widehat{y} \right $

Step	Algorithm: $y := Ax + y$ (A symmetric stored in lower triangular part)	
1a	$\{y = \widehat{y}\}$	}
4	where	
2	$\left\{ \begin{pmatrix} y_T \\ y_B \end{pmatrix} = \begin{pmatrix} A_{TL}x_T + & \widehat{y}_T \\ A_{BL}x_T + & \widehat{y}_B \end{pmatrix} \right.$	$\bigg\}$
3	while $m(A_{TL}) < m(A)$ do	
2,3	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge m(A_{TL}) < m(A) \end{array} \right.$	$\bigg\}$
5a	where	
6		
8		
7		
5b		
2	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \end{array} \right.$	
	endwhile	
2,3	$\left\{ \begin{pmatrix} \frac{y_T}{y_B} \end{pmatrix} = \begin{pmatrix} \frac{A_{TL}x_T + & \widehat{y}_T}{A_{BL}x_T + & \widehat{y}_B} \end{pmatrix} \land \neg (m(A_{TL}) < m(A)) \right\}$	$\bigg\}$
1b	$\{y = Ax + \widehat{y}$	}

Step	Algorithm: $y := Ax + y$ (A symmetric stored in lower triangular part)	
1a	$\{y=\widehat{y}$	}
	$A \rightarrow \begin{pmatrix} A_{TL} & A_{TR} \\ A_{BL} & A_{BR} \end{pmatrix}, x \rightarrow \begin{pmatrix} x_T \\ x_B \end{pmatrix}, y \rightarrow \begin{pmatrix} y_T \\ y_B \end{pmatrix}$ where A_{TL} is 0×0 , x_T has 0 rows, y_T has 0 rows	
2	$\left\{ \begin{pmatrix} y_T \\ y_B \end{pmatrix} = \begin{pmatrix} A_{TL}x_T + & \widehat{y}_T \\ A_{BL}x_T + & \widehat{y}_B \end{pmatrix} \right\}$	
3	while $m(A_{TL}) < m(A)$ do	
2,3	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge m(A_{TL}) < m(A) \end{array} \right.$	
5a	where	
6		
8		
7		
5b		
2	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \hat{y}_T}{A_{BL}x_T + \hat{y}_B}\right) \end{array} \right.$	
	endwhile	
2,3	$\left\{ \left(\frac{y_T}{y_B} \right) = \left(\frac{A_{TL}x_T + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B} \right) \land \neg (m(A_{TL}) < m(A)) \right\}$	
1b	$\{y = Ax + \widehat{y}$	}

Step	Algorithm: $y := Ax + y$ (A symmetric stored in lower triangular part)	
1a	$\{y=\widehat{y}$	}
4	$A \to \left(\begin{array}{c c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right), x \to \left(\begin{array}{c} x_T \\ \hline x_B \end{array}\right), y \to \left(\begin{array}{c} y_T \\ \hline y_B \end{array}\right)$ where A_{TL} is 0×0 , x_T has 0 rows, y_T has 0 rows	
2	$ \left\{ \begin{pmatrix} y_T \\ y_B \end{pmatrix} = \begin{pmatrix} A_{TL}x_T + & \widehat{y}_T \\ A_{BL}x_T + & \widehat{y}_B \end{pmatrix} \right. $	
3	while $m(A_{TL}) < m(A)$ do	
2,3	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \land m(A_{TL}) < m(A) \end{array} \right.$	$\left. \begin{array}{c} \\ \end{array} \right\}$
5a	$ \begin{pmatrix} A_{TL} & A_{TR} \\ A_{BL} & A_{BR} \end{pmatrix} \rightarrow \begin{pmatrix} A_{00} & a_{01} & A_{02} \\ a_{10}^T & \alpha_{11} & a_{12}^T \\ A_{20} & a_{21} & A_{22} \end{pmatrix}, \begin{pmatrix} x_T \\ x_B \end{pmatrix} \rightarrow \begin{pmatrix} x_0 \\ \chi_1 \\ x_2 \end{pmatrix}, \begin{pmatrix} y_T \\ y_B \end{pmatrix} \rightarrow \begin{pmatrix} y_0 \\ \psi_1 \\ y_2 \end{pmatrix} $ where α_{11} is 1×1 , χ_1 has 1 row, ψ_1 has 1 row	
6		$\left. ight\}$
8		
7		
5b	$ \left(\begin{array}{c c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c} A_{00} & a_{01} & A_{02} \\ a_{10}^T & \alpha_{11} & a_{12}^T \\ \hline A_{20} & a_{21} & A_{22} \end{array}\right), \left(\begin{array}{c} x_T \\ x_B \end{array}\right) \leftarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ x_2 \end{array}\right), \left(\begin{array}{c} y_T \\ y_B \end{array}\right) \leftarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) $	
2	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \end{array} \right.$	igg]
	endwhile	
2,3	$\left\{ \left(\frac{y_T}{y_B} \right) = \left(\frac{A_{TL}x_T + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B} \right) \land \neg (m(A_{TL}) < m(A)) \right\}$	$\left. \right\}$
1b	$\{y = Ax + \widehat{y}$	}

Step	Algorithm: $y := Ax + y$ (A symmetric stored in lower triangular part)
la	
4	$A \to \begin{pmatrix} A_{TL} & A_{TR} \\ A_{BL} & A_{BR} \end{pmatrix}, x \to \begin{pmatrix} x_T \\ x_B \end{pmatrix}, y \to \begin{pmatrix} y_T \\ y_B \end{pmatrix}$ where A_{TL} is 0×0 , x_T has 0 rows, y_T has 0 rows
2	$\left\{ \begin{pmatrix} \frac{y_T}{y_B} \end{pmatrix} = \begin{pmatrix} \frac{A_{TL}x_T + & \widehat{y}_T}{A_{BL}x_T + & \widehat{y}_B} \end{pmatrix} \right\}$
3	while $m(A_{TL}) < m(A)$ do
2,3	$\left\{ \left(\frac{y_T}{y_B} \right) = \left(\frac{A_{TL}x_T + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B} \right) \land m(A_{TL}) < m(A) \right\}$
5a	$ \left(\begin{array}{c c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \rightarrow \left(\begin{array}{c c} A_{00} & a_{01} & A_{02} \\ \hline a_{10}^T & \alpha_{11} & a_{12}^T \\ A_{20} & a_{21} & A_{22} \end{array}\right), \left(\begin{array}{c} x_T \\ x_B \end{array}\right) \rightarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ x_2 \end{array}\right), \left(\begin{array}{c} y_T \\ y_B \end{array}\right) \rightarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) $ where α_{11} is 1×1 , χ_1 has 1 row, ψ_1 has 1 row
6	$ \begin{cases} \begin{pmatrix} y_0 \\ \psi_1 \\ y_2 \end{pmatrix} = \begin{pmatrix} A_{00}x_0 + & \widehat{y}_0 \\ a_{10}^T x_0 + & \widehat{\psi}_1 \\ A_{20}x_0 + & \widehat{y}_2 \end{pmatrix} $
8	
7	
5b	$ \left(\begin{array}{c c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c} A_{00} & a_{01} & A_{02} \\ a_{10}^T & \alpha_{11} & a_{12}^T \\ \hline A_{20} & a_{21} & A_{22} \end{array}\right), \left(\begin{array}{c} x_T \\ x_B \end{array}\right) \leftarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ x_2 \end{array}\right), \left(\begin{array}{c} y_T \\ y_B \end{array}\right) \leftarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) $
2	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \qquad \widehat{y}_T}{A_{BL}x_T + \qquad \widehat{y}_B}\right) \end{array} \right\}$
	endwhile
2,3	$\left\{ \begin{pmatrix} \frac{y_T}{y_B} \end{pmatrix} = \begin{pmatrix} \frac{A_{TL}x_T + & \widehat{y}_T}{A_{BL}x_T + & \widehat{y}_B} \end{pmatrix} \land \neg (m(A_{TL}) < m(A)) \right\}$
1b	$\{y = Ax + \widehat{y} $ \}

Step	Algorithm: $y := Ax + y$ (A symmetric stored in lower triangular part)
la	
4	$A \to \begin{pmatrix} A_{TL} & A_{TR} \\ A_{BL} & A_{BR} \end{pmatrix}, x \to \begin{pmatrix} x_T \\ x_B \end{pmatrix}, y \to \begin{pmatrix} y_T \\ y_B \end{pmatrix}$ where A_{TL} is 0×0 , x_T has 0 rows, y_T has 0 rows
2	$\left\{ \begin{pmatrix} y_T \\ y_B \end{pmatrix} = \begin{pmatrix} A_{TL}x_T + & \widehat{y}_T \\ A_{BL}x_T + & \widehat{y}_B \end{pmatrix} \right\}$
3	while $m(A_{TL}) < m(A)$ do
2,3	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \land m(A_{TL}) < m(A) \end{array} \right\}$
5a	$ \left(\begin{array}{c c} A_{TL} & A_{TR} \\ A_{BL} & A_{BR} \end{array}\right) \rightarrow \left(\begin{array}{c c} A_{00} & a_{01} & A_{02} \\ \hline a_{10}^T & \alpha_{11} & a_{12}^T \\ A_{20} & a_{21} & A_{22} \end{array}\right), \left(\begin{array}{c} x_T \\ x_B \end{array}\right) \rightarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ x_2 \end{array}\right), \left(\begin{array}{c} y_T \\ y_B \end{array}\right) \rightarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) $ where α_{11} is 1×1 , χ_1 has 1 row, ψ_1 has 1 row
6	$ \begin{cases} \begin{pmatrix} y_0 \\ \psi_1 \\ y_2 \end{pmatrix} = \begin{pmatrix} A_{00}x_0 + & \widehat{y}_0 \\ a_{10}^T x_0 + & \widehat{\psi}_1 \\ A_{20}x_0 + & \widehat{y}_2 \end{pmatrix} \end{cases} $
8	
7	$ \begin{cases} \begin{pmatrix} y_0 \\ \psi_1 \\ y_2 \end{pmatrix} = \begin{pmatrix} A_{00}x_0 + \chi_1(a_{10}^T)^T + & \widehat{y}_0 \\ a_{10}^Tx_0 + \alpha_{11}\chi_1 + & \widehat{\psi}_1 \\ A_{20}x_0 + \chi_1a_{21} + & \widehat{y}_2 \end{pmatrix} $
5b	$ \left(\begin{array}{c c c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c} A_{00} & a_{01} & A_{02} \\ a_{10}^T & \alpha_{11} & a_{12}^T \\ \hline A_{20} & a_{21} & A_{22} \end{array}\right), \left(\begin{array}{c} x_T \\ x_B \end{array}\right) \leftarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ x_2 \end{array}\right), \left(\begin{array}{c} y_T \\ y_B \end{array}\right) \leftarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) $
2	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \qquad \widehat{y}_T}{A_{BL}x_T + \qquad \widehat{y}_B}\right) \end{array} \right\}$
	endwhile
2,3	$\left\{ \begin{pmatrix} \frac{y_T}{y_B} \end{pmatrix} = \begin{pmatrix} \frac{A_{TL}x_T + & \widehat{y}_T}{A_{BL}x_T + & \widehat{y}_B} \end{pmatrix} \land \neg (m(A_{TL}) < m(A)) \right\}$
1b	$\{y = Ax + \widehat{y} $

Step	Algorithm: $y := Ax + y$ (A symmetric stored in lower triangular part)	
1a	$y = \hat{y}$	}
4	$A \to \begin{pmatrix} A_{TL} & A_{TR} \\ A_{BL} & A_{BR} \end{pmatrix}, x \to \begin{pmatrix} x_T \\ x_B \end{pmatrix}, y \to \begin{pmatrix} y_T \\ y_B \end{pmatrix}$ where A_{TL} is 0×0 , x_T has 0 rows, y_T has 0 rows	
2	$\left\{ \begin{pmatrix} y_T \\ y_B \end{pmatrix} = \begin{pmatrix} A_{TL}x_T + & \widehat{y}_T \\ A_{BL}x_T + & \widehat{y}_B \end{pmatrix} \right\}$	$\left. ight\}$
3	while $m(A_{TL}) < m(A)$ do	
2,3	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \land m(A_{TL}) < m(A) \end{array} \right.$	$\left. \right\}$
5a	$ \left(\begin{array}{c c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \rightarrow \left(\begin{array}{c c} A_{00} & a_{01} & A_{02} \\ \hline a_{10}^T & \alpha_{11} & a_{12}^T \\ A_{20} & a_{21} & A_{22} \end{array}\right), \left(\begin{array}{c} x_T \\ x_B \end{array}\right) \rightarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ x_2 \end{array}\right), \left(\begin{array}{c} y_T \\ y_B \end{array}\right) \rightarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) $ where α_{11} is 1×1 , χ_1 has 1 row, ψ_1 has 1 row	
6	$\begin{cases} \begin{pmatrix} y_0 \\ \psi_1 \\ y_2 \end{pmatrix} = \begin{pmatrix} A_{00}x_0 + & \widehat{y}_0 \\ a_{10}^T x_0 + & \widehat{\psi}_1 \\ A_{20}x_0 + & \widehat{y}_2 \end{pmatrix}$	$\left.\begin{array}{c} \overline{} \end{array}\right\}$
8	$y_0 := \chi_1 (a_{10}^T)^T + y_0$ $\psi_1 := \alpha_{11} \chi_1 + \psi_1$ $y_2 := \chi_1 a_{21} + y_2$	
7	$\begin{cases} \begin{pmatrix} y_0 \\ \psi_1 \\ y_2 \end{pmatrix} = \begin{pmatrix} A_{00}x_0 + \chi_1(a_{10}^T)^T + & \widehat{y}_0 \\ a_{10}^T x_0 + \alpha_{11}\chi_1 + & \widehat{\psi}_1 \\ A_{20}x_0 + \chi_1 a_{21} + & \widehat{y}_2 \end{pmatrix} \end{cases}$	
5b	$ \left(\begin{array}{c c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c} A_{00} & a_{01} & A_{02} \\ a_{10}^T & \alpha_{11} & a_{12}^T \\ \hline A_{20} & a_{21} & A_{22} \end{array}\right), \left(\begin{array}{c} x_T \\ x_B \end{array}\right) \leftarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ x_2 \end{array}\right), \left(\begin{array}{c} y_T \\ y_B \end{array}\right) \leftarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) $	
2	$\left\{ \begin{array}{c} \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \end{array} \right.$	$\left. ight\}$
	endwhile	
2,3	$\left\{ \begin{pmatrix} \frac{y_T}{y_B} \end{pmatrix} = \begin{pmatrix} \frac{A_{TL}x_T + & \widehat{y}_T}{A_{BL}x_T + & \widehat{y}_B} \end{pmatrix} \land \neg (m(A_{TL}) < m(A)) \right\}$	
1b	$\{y = Ax + \widehat{y}$	}

Algorithm: $y := Ax + y$ (A symmetric stored in lower triangular part)
$A \to \begin{pmatrix} A_{TL} & A_{TR} \\ A_{BL} & A_{BR} \end{pmatrix}, x \to \begin{pmatrix} x_T \\ x_B \end{pmatrix}, y \to \begin{pmatrix} y_T \\ y_B \end{pmatrix}$ where A_{TL} is 0×0 , x_T has 0 rows, y_T has 0 rows
while $m(A_{TL}) < m(A)$ do
$ \left(\begin{array}{c c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \rightarrow \left(\begin{array}{c c} A_{00} & a_{01} & A_{02} \\ \hline a_{10}^T & \alpha_{11} & a_{12}^T \\ A_{20} & a_{21} & A_{22} \end{array}\right), \left(\begin{array}{c} x_T \\ x_B \end{array}\right) \rightarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ x_2 \end{array}\right), \left(\begin{array}{c} y_T \\ y_B \end{array}\right) \rightarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) $ where α_{11} is 1×1 , χ_1 has 1 row, ψ_1 has 1 row
$y_0 := \chi_1(a_{10}^T)^T + y_0$
$\psi_1 := \alpha_{11}\chi_1 + \psi_1$
$y_2 := \chi_1 a_{21} + y_2$
$ \left(\begin{array}{c c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c c} A_{00} & a_{01} & A_{02} \\ a_{10}^T & \alpha_{11} & a_{12}^T \\ \hline A_{20} & a_{21} & A_{22} \end{array}\right), \left(\begin{array}{c} x_T \\ x_B \end{array}\right) \leftarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ x_2 \end{array}\right), \left(\begin{array}{c} y_T \\ y_B \end{array}\right) \leftarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) $
endwhile

Algorithm: y := Ax + y (A symmetric stored in lower triangular part)

$$A \to \left(\begin{array}{c|c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) , x \to \left(\begin{array}{c} x_T \\ \hline x_B \end{array}\right) , y \to \left(\begin{array}{c} y_T \\ \hline y_B \end{array}\right)$$

where A_{TL} is 0×0 , x_T has 0 rows, y_T has 0 rows

while $m(A_{TL}) < m(A)$ do

$$\left(\begin{array}{c|c}
A_{TL} & A_{TR} \\
\hline
A_{BL} & A_{BR}
\end{array}\right) \to \left(\begin{array}{c|c}
A_{00} & a_{01} & A_{02} \\
\hline
a_{10}^T & \alpha_{11} & a_{12}^T \\
A_{20} & a_{21} & A_{22}
\end{array}\right) , \left(\begin{array}{c}
x_T \\
x_B
\end{array}\right) \to \left(\begin{array}{c}
x_0 \\
\chi_1 \\
x_2
\end{array}\right) , \left(\begin{array}{c}
y_T \\
y_B
\end{array}\right) \to \left(\begin{array}{c}
y_0 \\
\psi_1 \\
y_2
\end{array}\right)$$

where α_{11} is 1×1 , χ_1 has 1 row, ψ_1 has 1 row

$$y_0 := \chi_1(a_{10}^T)^T + y_0$$

$$\psi_1 := \alpha_{11}\chi_1 + \psi_1$$

$$y_2 := \chi_1 a_{21} + y_2$$

$$\left(\begin{array}{c|c}
A_{TL} & A_{TR} \\
\hline
A_{BL} & A_{BR}
\end{array}\right) \leftarrow \left(\begin{array}{c|c}
A_{00} & a_{01} & A_{02} \\
a_{10}^T & \alpha_{11} & a_{12}^T \\
\hline
A_{20} & a_{21} & A_{22}
\end{array}\right), \left(\begin{array}{c}
x_T \\
x_B
\end{array}\right) \leftarrow \left(\begin{array}{c}
x_0 \\
\chi_1 \\
x_2
\end{array}\right), \left(\begin{array}{c}
y_T \\
y_B
\end{array}\right) \leftarrow \left(\begin{array}{c}
y_0 \\
\psi_1 \\
y_2
\end{array}\right)$$

endwhile