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

Step	Algorithm: $y := Ax + y$ $\quad$ (A symmetric stored in lower triangular part)
1a	$\{ \qquad \}$
4	where
2	$\left\{ \qquad \right\}$
3	while $\qquad$ do
2,3	$\left\{ \qquad \wedge \qquad \right\}$
5a	where
6	$\left\{ \qquad \right\}$
8	
7	$\left\{ \qquad \right\}$
5b	
2	$\left\{ \qquad \right\}$
	endwhile
2,3	$\left\{ \qquad \wedge \neg(\qquad) \qquad \right\}$
1b	$\{ \qquad \}$

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4	where
2	$\left\{ \right\}$
3	while do
2,3	$\left\{ \wedge \right\}$
5a	where
6	$\left\{ \right\}$
8	
7	$\left\{ \right\}$
5b	
2	$\left\{ \right\}$
	endwhile
2,3	$\left\{ \wedge \neg (\quad) \right\}$
1b	$\{y = Ax + \widehat{y}$ $\}$

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

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5a	$\left(\begin{array}{c\|c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \rightarrow \left(\begin{array}{cc\|c} A_{00} & a_{01} & A_{02} \\ a_{10}^T & \alpha_{11} & a_{12}^T \\ \hline A_{20} & a_{21} & A_{22} \end{array}\right)$, $\left(\begin{array}{c} x_T \\ \hline x_B \end{array}\right) \rightarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ \hline x_2 \end{array}\right)$, $\left(\begin{array}{c} y_T \\ \hline y_B \end{array}\right) \rightarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ \hline y_2 \end{array}\right)$ where α_{11} is 1×1, χ_1 has 1 row, ψ_1 has 1 row
6	$\left\{ \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) = \left(\begin{array}{r} \widehat{y}_0 \\ \widehat{\psi}_1 \\ A_{20}x_0 + \chi_1 a_{21} + A_{22}x_2 + \widehat{y}_2 \end{array}\right) \right\}$
8	
7	$\{ \}$
5b	$\left(\begin{array}{c\|c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c\|cc} A_{00} & a_{01} & A_{02} \\ \hline a_{10}^T & \alpha_{11} & a_{12}^T \\ A_{20} & a_{21} & A_{22} \end{array}\right)$, $\left(\begin{array}{c} x_T \\ \hline x_B \end{array}\right) \leftarrow \left(\begin{array}{c} x_0 \\ \hline \chi_1 \\ x_2 \end{array}\right)$, $\left(\begin{array}{c} y_T \\ \hline y_B \end{array}\right) \leftarrow \left(\begin{array}{c} y_0 \\ \hline \psi_1 \\ y_2 \end{array}\right)$
2	$\left\{ \left(\begin{array}{c} y_T \\ \hline y_B \end{array}\right) = \left(\begin{array}{r} \widehat{y}_T \\ \hline A_{BL}x_T + A_{BR}x_B + \widehat{y}_B \end{array}\right) \right\}$
	endwhile
2,3	$\left\{ \left(\begin{array}{c} y_T \\ \hline y_B \end{array}\right) = \left(\begin{array}{r} \widehat{y}_T \\ \hline A_{BL}x_T + A_{BR}x_B + \widehat{y}_B \end{array}\right) \wedge \neg(m(A_{BR}) < m(A)) \right\}$
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3	while $m(A_{BR}) < m(A)$ do
2,3	$\left\{ \left(\begin{array}{c} y_T \\ \hline y_B \end{array}\right) = \left(\begin{array}{r} \widehat{y}_T \\ \hline A_{BL}x_T + A_{BR}x_B + \widehat{y}_B \end{array}\right) \wedge m(A_{BR}) < m(A) \right\}$
5a	$\left(\begin{array}{c\|c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \rightarrow \left(\begin{array}{cc\|c} A_{00} & a_{01} & A_{02} \\ a_{10}^T & \alpha_{11} & a_{12}^T \\ \hline A_{20} & a_{21} & A_{22} \end{array}\right)$, $\left(\begin{array}{c} x_T \\ \hline x_B \end{array}\right) \rightarrow \left(\begin{array}{c} x_0 \\ \chi_1 \\ \hline x_2 \end{array}\right)$, $\left(\begin{array}{c} y_T \\ \hline y_B \end{array}\right) \rightarrow \left(\begin{array}{c} y_0 \\ \psi_1 \\ \hline y_2 \end{array}\right)$ where α_{11} is 1×1, χ_1 has 1 row, ψ_1 has 1 row
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8	
7	$\left\{ \left(\begin{array}{c} y_0 \\ \psi_1 \\ y_2 \end{array}\right) = \left(\begin{array}{r} \widehat{y}_0 \\ a_{10}^T x_0 + \alpha_{11}\chi_1 + a_{21}^T x_2 + \widehat{\psi}_1 \\ A_{20}x_0 + \chi_1 a_{21} + A_{22}x_2 + \widehat{y}_2 \end{array}\right) \right\}$
5b	$\left(\begin{array}{c\|c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array}\right) \leftarrow \left(\begin{array}{c\|cc} A_{00} & a_{01} & A_{02} \\ \hline a_{10}^T & \alpha_{11} & a_{12}^T \\ A_{20} & a_{21} & A_{22} \end{array}\right)$, $\left(\begin{array}{c} x_T \\ \hline x_B \end{array}\right) \leftarrow \left(\begin{array}{c} x_0 \\ \hline \chi_1 \\ x_2 \end{array}\right)$, $\left(\begin{array}{c} y_T \\ \hline y_B \end{array}\right) \leftarrow \left(\begin{array}{c} y_0 \\ \hline \psi_1 \\ y_2 \end{array}\right)$
2	$\left\{ \left(\begin{array}{c} y_T \\ \hline y_B \end{array}\right) = \left(\begin{array}{r} \widehat{y}_T \\ \hline A_{BL}x_T + A_{BR}x_B + \widehat{y}_B \end{array}\right) \right\}$
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2,3	$\left\{ \left(\begin{array}{c} y_T \\ \hline y_B \end{array}\right) = \left(\begin{array}{r} \widehat{y}_T \\ \hline A_{BL}x_T + A_{BR}x_B + \widehat{y}_B \end{array}\right) \wedge \neg(m(A_{BR}) < m(A)) \right\}$
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2	$\left\{ \left(\begin{array}{c} y_T \\ \hline y_B \end{array} \right) = \left(\begin{array}{r} \widehat{y}_T \\ \hline A_{BL} x_T + A_{BR} x_B + \widehat{y}_B \end{array} \right) \right\}$
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2,3	$\left\{ \left(\begin{array}{c} y_T \\ \hline y_B \end{array} \right) = \left(\begin{array}{r} \widehat{y}_T \\ \hline A_{BL} x_T + A_{BR} x_B + \widehat{y}_B \end{array} \right) \wedge m(A_{BR}) < m(A) \right\}$
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5b	$\left(\begin{array}{c\|c} A_{TL} & A_{TR} \\ \hline A_{BL} & A_{BR} \end{array} \right) \leftarrow \left(\begin{array}{c\|cc} A_{00} & a_{01} & A_{02} \\ \hline a_{10}^T & \alpha_{11} & a_{12}^T \\ A_{20} & a_{21} & A_{22} \end{array} \right)$, $\left(\begin{array}{c} x_T \\ \hline x_B \end{array} \right) \leftarrow \left(\begin{array}{c} x_0 \\ \hline \chi_1 \\ x_2 \end{array} \right)$, $\left(\begin{array}{c} y_T \\ \hline y_B \end{array} \right) \leftarrow \left(\begin{array}{c} y_0 \\ \hline \psi_1 \\ y_2 \end{array} \right)$
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	endwhile
2,3	$\left\{ \left(\begin{array}{c} y_T \\ \hline y_B \end{array} \right) = \left(\begin{array}{r} \widehat{y}_T \\ \hline A_{BL} x_T + A_{BR} x_B + \widehat{y}_B \end{array} \right) \wedge \neg (m(A_{BR}) < m(A)) \right\}$
1b	$\{ y = Ax + \widehat{y} \}$

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

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

where A_{BR} is 0×0, x_B has 0 rows, y_B has 0 rows

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

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

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

$$\psi_1 := a_{10}^T x_0 + \alpha_{11} \chi_1 + a_{21}^T x_2 + \psi_1$$

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

endwhile

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

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

where A_{BR} is 0×0, x_B has 0 rows, y_B has 0 rows

while $m(A_{BR}) < m(A)$ **do**

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

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

$\psi_1 := a_{10}^T x_0 + \alpha_{11}\chi_1 + a_{21}^T x_2 + \psi_1$

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

endwhile