Step	Algorithm:		
1a			
4			
	where		
2			
3	while do		
2,3		٨	
5a			
	where		
6			
8			
5b			
7			
2			
	endwhile		
2,3		^ ¬()
1b			

Step	Algorithm: $[y] := SYMV_I_UNB_VAR4_UNB(A, x, y)$
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(\frac{y_T}{y_B} \right) = \left(\frac{A_{TL}x_T + A_{BL}^T x_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B} \right) $
3	while $m(A_{TL}) < m(A)$ do
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge m(A_{TL}) < m(A)$
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 \\ \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 \\ \hline \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 \\ \hline \psi_1 \\ \hline y_2 \end{array}\right) $
6	where α_{11} is 1×1 , χ_1 has 1 row, ψ_1 has 1 row $ \begin{pmatrix} y_0 \\ \overline{\psi_1} \\ y_2 \end{pmatrix} = \begin{pmatrix} A_{00} + (a_{10}^T)^T \chi_1 + A_{20}^T x_2 + \widehat{y_0} \\ \overline{a_{10}^T x_0 + \widehat{\psi_1}} \\ A_{20} x_0 + \widehat{y_2} \end{pmatrix} $
8	$y_0 = y_0$ $\psi_1 = \alpha_{11}\chi_1 + a_{21}^T x_2 + \psi_1$ $y_2 = a_{21}\chi_1 + y_2$
5b	$ \left(\frac{A_{TL}}{A_{BL}} \begin{vmatrix} A_{TR} \\ A_{BR} \end{vmatrix} \leftarrow \left(\frac{A_{00}}{a_{01}} \begin{vmatrix} a_{01} \\ a_{10} \end{vmatrix} \begin{vmatrix} A_{02} \\ a_{11} \end{vmatrix} \right), \left(\frac{x_T}{x_B}\right) \leftarrow \left(\frac{x_0}{\chi_1} \\ x_2\right), \left(\frac{y_T}{y_B}\right) \leftarrow \left(\frac{y_0}{\psi_1} \\ y_2\right) $
7	$ \left(\frac{y_0}{\psi_1}\right) = \left(\frac{A_{00} + a_{10}\chi_1 + A_{20}^T x_2 + \widehat{y}_0}{\alpha_{11}\chi_1 + a_{21}^T x_2 + a_{10}^T x_0 + \widehat{\psi}_1} - \frac{\alpha_{11}\chi_1 + a_{21}^T x_2 + a_{10}^T x_0 + \widehat{\psi}_1}{a_{21}\chi_1 + A_{20}x_0 + \widehat{y}_2}\right) $
2	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^T x_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right)$
	endwhile
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^T x_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge \neg (m(A_{TL}) < m(A))$
1b	$y = Ax + \hat{y}$

 $\textbf{Algorithm:} \ [y] := \texttt{Symv_I_unb_var4_unb}(A, x, y)$

$$A \to \left(\frac{A_{TL}}{A_{BL}} \begin{vmatrix} A_{TR} \\ A_{BL} \end{vmatrix}, x \to \left(\frac{x_T}{x_B}\right), y \to \left(\frac{y_T}{y_B}\right)$$

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

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

$$\left(\frac{A_{TL} | A_{TR}}{A_{BL} | A_{BR}}\right) \to \left(\frac{A_{00} | a_{01} | A_{02}}{a_{10}^T | a_{11} | a_{12}^T}\right), \left(\frac{x_T}{x_B}\right) \to \left(\frac{x_0}{x_1}\right), \left(\frac{y_T}{y_B}\right) \to \left(\frac{y_0}{y_1}\right)$$

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

$$y_0 = y_0$$

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

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

$$\left(\frac{A_{TL} | A_{TR}}{A_{BL} | A_{BR}}\right) \leftarrow \left(\frac{A_{00} | a_{01} | A_{02}}{a_{10}^T | a_{11} | a_{12}^T}\right), \left(\frac{x_T}{x_B}\right) \leftarrow \left(\frac{x_0}{\chi_1}\right), \left(\frac{y_T}{y_B}\right) \leftarrow \left(\frac{y_0}{\psi_1}\right)$$

endwhile

Step	Algorithm: $[y] := SYMV_I_UNB_VAR4_UNB(A, x, y)$
1a	$y=\widehat{y}$
4	where
2	
3	while do
2,3	^
5a	where
6	
8	
5b	
7	
2	
	endwhile
2,3	$\wedge\neg(\hspace{1cm})$
1b	$y = Ax + \widehat{y}$

Step	Algorithm: $[y] := SYMV_I_UNB_VAR4_UNB(A, x, y)$
1a	$y = \widehat{y}$
4	where
2	$ \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) $
3	while do
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge$
5a	
6	where
8	
5b	
7	
2	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^T x_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right)$
	endwhile
2	$ \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \land \neg ($
1b	$y = Ax + \widehat{y}$

Step	Algorithm: $[y] := Symv_I_unb_var4_unb(A, x, y)$
1a	$y = \widehat{y}$
4	where
2	$ \left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^T x_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) $
3	while $m(A_{TL}) < m(A)$ do
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^T x_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge m(A_{TL}) < m(A)$
5a	
	where
6	
8	
5b	
7	
2	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right)$
	endwhile
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^T x_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \land \neg (m(A_{TL}) < m(A))$
1b	$y = Ax + \widehat{y}$

Step	Algorithm: $[y] := \text{Symv_I_unb_var4_unb}(A, x, y)$
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	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right)$
3	while $m(A_{TL}) < m(A)$ do
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge m(A_{TL}) < m(A)$
5a	
	1
	where
6	
8	
F1.	
5b	
7	
•	
	$\left(rac{y_T}{} ight) = \left(rac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{} ight)$
2	$\left(\frac{1}{y_B}\right) = \left(\frac{1}{A_{BL}x_T + \hat{y}_B}\right)$
	endwhile
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^T x_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \land \neg (m(A_{TL}) < m(A))$
1b	$y = Ax + \widehat{y}$

Step	Algorithm: $[y] := \text{Symv_I_unb_var4_unb}(A, x, y)$
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	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \hat{y}_T}{A_{BL}x_T + \hat{y}_B}\right)$
3	while $m(A_{TL}) < m(A)$ do
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge m(A_{TL}) < m(A)$
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 \\ \hline 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 \\ \hline \psi_1 \\ y_2 \end{array}\right) $ where α_{11} is 1×1 , χ_1 has 1 row, ψ_1 has 1 row
6	
8	
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} \\ \hline 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) \leftarrow \left(\begin{array}{c} x_0 \\ \hline \chi_1 \\ \hline 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 \\ \hline y_2 \end{array}\right) $
7	
2	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right)$
	endwhile
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \land \neg (m(A_{TL}) < m(A))$
1b	$y = Ax + \widehat{y}$

Step	Algorithm: $[y] := Symv_I_unb_var4_unb(A, x, y)$
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	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right)$
3	while $m(A_{TL}) < m(A)$ do
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge m(A_{TL}) < m(A)$
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 \\ \hline 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 \\ \hline \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 \\ \hline \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{pmatrix} \frac{y_0}{\psi_1} \\ \frac{y_0}{y_2} \end{pmatrix} = \begin{pmatrix} \frac{A_{00} + (a_{10}^T)^T \chi_1 + A_{20}^T x_2 + \widehat{y}_0}{a_{10}^T x_0 + \widehat{\psi}_1} \\ \frac{A_{20} x_0 + \widehat{y}_2}{A_{20} x_0 + \widehat{y}_2} \end{pmatrix} $
8	
5b	$ \left(\frac{A_{TL}}{A_{BL}} \begin{vmatrix} A_{TR} \\ A_{BR} \end{vmatrix} \leftarrow \left(\frac{A_{00}}{a_{01}} \begin{vmatrix} a_{01} \\ a_{10} \end{vmatrix} \begin{vmatrix} A_{02} \\ a_{11} \end{vmatrix} \right), \left(\frac{x_T}{x_B}\right) \leftarrow \left(\frac{x_0}{\chi_1} \\ x_2\right), \left(\frac{y_T}{y_B}\right) \leftarrow \left(\frac{y_0}{\psi_1} \\ y_2\right) $
7	
2	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^T x_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right)$
	endwhile
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge \neg (m(A_{TL}) < m(A))$
1b	$y = Ax + \widehat{y}$

Step	Algorithm: $[y] := SYMV_I_UNB_VAR4_UNB(A, x, y)$
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(\frac{y_T}{y_B} \right) = \left(\frac{A_{TL}x_T + A_{BL}^T x_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B} \right) $
3	while $m(A_{TL}) < m(A)$ do
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge m(A_{TL}) < m(A)$
5a	$ \left(\frac{A_{TL} A_{TR}}{A_{BL} A_{BR}}\right) \to \left(\frac{A_{00} a_{01} A_{02}}{a_{10}^{T} \alpha_{11} a_{12}^{T}}\right), \left(\frac{x_{T}}{x_{B}}\right) \to \left(\frac{x_{0}}{\chi_{1}}\right), \left(\frac{y_{T}}{y_{B}}\right) \to \left(\frac{y_{0}}{\psi_{1}}\right) $
6	where α_{11} is 1×1 , χ_1 has 1 row, ψ_1 has 1 row $ \begin{pmatrix} \frac{y_0}{\psi_1} \\ \frac{1}{y_2} \end{pmatrix} = \begin{pmatrix} \frac{A_{00} + (a_{10}^T)^T \chi_1 + A_{20}^T x_2 + \widehat{y}_0}{a_{10}^T x_0 + \widehat{\psi}_1} \\ \frac{A_{20} x_0 + \widehat{y}_2} \end{pmatrix} $
8	
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} \\ \hline 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) \leftarrow \left(\begin{array}{c} x_0 \\ \hline \chi_1 \\ \hline 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 \\ \hline y_2 \end{array}\right) $
7	$ \left(\frac{y_0}{\psi_1}\right) = \left(\frac{A_{00} + a_{10}\chi_1 + A_{20}^T x_2 + \widehat{y}_0}{\alpha_{11}\chi_1 + a_{21}^T x_2 + a_{10}^T x_0 + \widehat{\psi}_1} - \frac{\alpha_{11}\chi_1 + a_{21}^T x_2 + a_{10}^T x_0 + \widehat{\psi}_1}{a_{21}\chi_1 + A_{20}x_0 + \widehat{y}_2}\right) $
2	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^T x_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right)$
	endwhile
2	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge \neg (m(A_{TL}) < m(A))$
1b	$y = Ax + \hat{y}$

Step	Algorithm: $[y] := Symv_I_unb_var4_unb(A, x, y)$
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	$egin{pmatrix} y_T \ y_B \end{pmatrix} = egin{pmatrix} A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T \ A_{BL}x_T + \widehat{y}_B \end{pmatrix}$
3	while $m(A_{TL}) < m(A)$ do
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \wedge m(A_{TL}) < m(A)$
5a	$ \left(\frac{A_{TL} A_{TR}}{A_{BL} A_{BR}}\right) \to \left(\frac{A_{00} a_{01} A_{02}}{a_{10}^{T} \alpha_{11} a_{12}^{T}}\right), \left(\frac{x_{T}}{x_{B}}\right) \to \left(\frac{x_{0}}{\chi_{1}}\right), \left(\frac{y_{T}}{y_{B}}\right) \to \left(\frac{y_{0}}{\psi_{1}}\right) $
6	where α_{11} is 1×1 , χ_1 has 1 row, ψ_1 has 1 row $ \begin{pmatrix} y_0 \\ \overline{\psi_1} \\ y_2 \end{pmatrix} = \begin{pmatrix} A_{00} + (a_{10}^T)^T \chi_1 + A_{20}^T x_2 + \widehat{y_0} \\ \overline{a_{10}^T x_0 + \widehat{\psi_1}} \\ A_{20} x_0 + \widehat{y_2} \end{pmatrix} $
8	$y_0 = y_0$ $\psi_1 = \alpha_{11}\chi_1 + a_{21}^T x_2 + \psi_1$ $y_2 = a_{21}\chi_1 + y_2$
5b	$ \left(\frac{A_{TL}}{A_{BL}} \begin{vmatrix} A_{TR} \\ A_{BR} \end{vmatrix} \leftarrow \left(\frac{A_{00}}{a_{01}} \begin{vmatrix} a_{01} \\ a_{10} \end{vmatrix} \begin{vmatrix} A_{02} \\ a_{11} \end{vmatrix} \right), \left(\frac{x_T}{x_B}\right) \leftarrow \left(\frac{x_0}{\chi_1} \\ x_2\right), \left(\frac{y_T}{y_B}\right) \leftarrow \left(\frac{y_0}{\psi_1} \\ y_2\right) $
7	$ \left(\frac{y_0}{\psi_1}\right) = \left(\frac{A_{00} + a_{10}\chi_1 + A_{20}^T x_2 + \widehat{y}_0}{\alpha_{11}\chi_1 + a_{21}^T x_2 + a_{10}^T x_0 + \widehat{\psi}_1} - \frac{\alpha_{11}\chi_1 + a_{21}^T x_2 + a_{10}^T x_0 + \widehat{\psi}_1}{a_{21}\chi_1 + A_{20}x_0 + \widehat{y}_2}\right) $
2	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^T x_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right)$
	endwhile
2,3	$\left(\frac{y_T}{y_B}\right) = \left(\frac{A_{TL}x_T + A_{BL}^Tx_B + \widehat{y}_T}{A_{BL}x_T + \widehat{y}_B}\right) \land \neg (m(A_{TL}) < m(A))$
1b	$y = Ax + \hat{y}$

Step	Algorithm: $[y] := SYMV_I_UNB_VAR4_UNB(A, x, y)$
	$A \to \left(\frac{A_{TL}}{A_{BL}} \begin{vmatrix} A_{TR} \\ A_{BR} \end{vmatrix}, x \to \left(\frac{x_T}{x_B}\right), y \to \left(\frac{y_T}{y_B}\right)$ where A_{TL} is 0×0 , x_T has 0 rows, y_T has 0 rows
	while $m(A_{TL}) < m(A)$ do
	$ \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
	$y_0 = y_0$ $\psi_1 = \alpha_{11}\chi_1 + a_{21}^T x_2 + \psi_1$ $y_2 = a_{21}\chi_1 + y_2$
	$ \left(\frac{A_{TL}}{A_{BL}} \begin{vmatrix} A_{TR} \\ A_{BR} \end{vmatrix} \leftarrow \left(\frac{A_{00}}{a_{01}} \begin{vmatrix} a_{01} \\ a_{11} \\ A_{21} \end{vmatrix} a_{11} \begin{vmatrix} a_{12} \\ A_{22} \end{vmatrix}, \left(\frac{x_T}{x_B}\right) \leftarrow \left(\frac{x_0}{x_1} \\ \frac{x_1}{x_2}\right), \left(\frac{y_T}{y_B}\right) \leftarrow \left(\frac{y_0}{y_1} \\ \frac{y_2}{y_2}\right) $
	endwhile

Algorithm: $[y] := SYMV_I_UNB_VAR4_UNB(A, x, y)$

$$A \to \left(\frac{A_{TL}}{A_{BL}} \begin{vmatrix} A_{TR} \\ A_{BL} \end{vmatrix}, x \to \left(\frac{x_T}{x_B}\right), y \to \left(\frac{y_T}{y_B}\right)$$

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

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

$$\left(\frac{A_{TL} | A_{TR}}{A_{BL} | A_{BR}}\right) \to \left(\frac{A_{00} | a_{01} | A_{02}}{a_{10}^T | a_{11} | a_{12}^T}\right), \left(\frac{x_T}{x_B}\right) \to \left(\frac{x_0}{x_1}\right), \left(\frac{y_T}{y_B}\right) \to \left(\frac{y_0}{y_1}\right)$$

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

$$y_0 = y_0$$

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

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

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

endwhile