

Step	Algorithm: $C := AB^T + BA^T + C$
1a	$\{C = \hat{C}$
4	$C \rightarrow \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right), A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right), B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right)$ <p>where C_{BR} is 0×0, A_B and B_B have 0 rows</p>
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
3	while $m(C_{BR}) < m(C)$ do
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge m(C_{BR}) < m(C) \right\}$
5a	$\left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \rightarrow \left(\begin{array}{cc c} C_{00} & * & * \\ c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ B_2 \end{array} \right)$ <p>where λ_{11} is 1×1, a_1 and b_1 have 1 row</p>
6	$\left\{ \begin{pmatrix} C_{00} & * & * \\ c_{10}^T & \lambda_{11} & * \\ C_{20} & c_{21} & C_{22} \end{pmatrix} = \begin{pmatrix} C_{00} & * & * \\ c_{10}^T & \lambda_{11} & * \\ A_2 B_0^T + \hat{C}_{20} & A_2 b_1 + \hat{c}_{21} & A_2 B_2^T + B_2 A_2^T + \hat{C}_{22} \end{pmatrix} \right\}$
8	$\lambda_{11} := a_1^T b_1 + b_1^T a_1 + \lambda_{11}$ $c_{10}^T := a_1^T B_0^T + C_{20}$ $c_{21} := B_2 a_1 + c_{21}$
7	$\left\{ \begin{pmatrix} C_{00} & * & * \\ c_{10}^T & \lambda_{11} & * \\ C_{20} & c_{21} & C_{22} \end{pmatrix} = \begin{pmatrix} C_{00} & * & * \\ a_1^T B_0^T + \hat{c}_{10}^T & a_1^T b_1 + b_1^T a_1 + \hat{\lambda}_{11} & * \\ A_2 B_0^T + \hat{C}_{20} & A_2 b_1 + B_2 a_1 + \hat{c}_{21} & A_2 B_2^T + B_2 A_2^T + \hat{C}_{22} \end{pmatrix} \right\}$
5b	$\left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \leftarrow \left(\begin{array}{cc c} C_{00} & * & * \\ c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ B_2 \end{array} \right)$
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
	endwhile
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge \neg(m(C_{BR}) < m(C)) \right\}$
1b	$\{C := AB^T + BA^T + \hat{C}.$

Step	Algorithm: $C := AB^T + BA^T + C$
1a	{
4	
	where
2	{
3	while do
2,3	{
	\wedge
5a	
	where
6	{
8	
7	{
5b	
2	{
	endwhile
2,3	{
	$\wedge \neg($
1b	{

Step	Algorithm: $C := AB^T + BA^T + C$
1a	{ $C = \hat{C}$ }
4	where
2	{
3	while do
2,3	{ \wedge }
5a	where
6	{
8	
7	{
5b	
2	{
	endwhile
2,3	{ $\wedge \neg($) }
1b	{ $C := AB^T + BA^T + \hat{C}$. }

Step	Algorithm: $C := AB^T + BA^T + C$
1a	$\{C = \hat{C}$
4	
	where
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
3	while do
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge \right\}$
5a	
	where
6	$\left\{ \right.$
8	
7	$\left\{ \right.$
5b	
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
	endwhile
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge \neg(\quad) \right\}$
1b	$\{C := AB^T + BA^T + \hat{C}.$

Step	Algorithm: $C := AB^T + BA^T + C$
1a	$\{C = \hat{C}\}$
4	
	where
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
3	while $m(C_{BR}) < m(C)$ do
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge m(C_{BR}) < m(C) \right\}$
5a	
	where
6	$\left\{ \right.$
8	
7	$\left\{ \right.$
5b	
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
	endwhile
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge \neg(m(C_{BR}) < m(C)) \right\}$
1b	$\{C := AB^T + BA^T + \hat{C}.\}$

Step	Algorithm: $C := AB^T + BA^T + C$
1a	$\{C = \hat{C}\}$
4	$C \rightarrow \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right), A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right), B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right)$ <p style="color: red;">where C_{BR} is 0×0, A_B and B_B have 0 rows</p>
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
3	while $m(C_{BR}) < m(C)$ do
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge m(C_{BR}) < m(C) \right\}$
5a	where
6	$\left\{ \right\}$
8	
7	$\left\{ \right\}$
5b	
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
	endwhile
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge \neg(m(C_{BR}) < m(C)) \right\}$
1b	$\{C := AB^T + BA^T + \hat{C}.\}$

Step	Algorithm: $C := AB^T + BA^T + C$
1a	$\{C = \hat{C}$
4	$C \rightarrow \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right), A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right), B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right)$ <p>where C_{BR} is 0×0, A_B and B_B have 0 rows</p>
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
3	while $m(C_{BR}) < m(C)$ do
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge m(C_{BR}) < m(C) \right\}$
5a	$\left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \rightarrow \left(\begin{array}{c c c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ \hline A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ \hline B_2 \end{array} \right)$ <p>where λ_{11} is 1×1, a_1 and b_1 have 1 row</p>
6	$\left\{ \right\}$
8	
7	$\left\{ \right\}$
5b	$\left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \leftarrow \left(\begin{array}{c c c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ \hline A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ \hline B_2 \end{array} \right)$
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
	endwhile
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge \neg(m(C_{BR}) < m(C)) \right\}$
1b	$\{C := AB^T + BA^T + \hat{C}.$

Step	Algorithm: $C := AB^T + BA^T + C$
1a	$\{C = \hat{C}$
4	$C \rightarrow \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right), A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right), B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right)$ <p>where C_{BR} is 0×0, A_B and B_B have 0 rows</p>
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
3	while $m(C_{BR}) < m(C)$ do
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge m(C_{BR}) < m(C) \right\}$
5a	$\left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \rightarrow \left(\begin{array}{c c c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ \hline A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ \hline B_2 \end{array} \right)$ <p>where λ_{11} is 1×1, a_1 and b_1 have 1 row</p>
6	$\left\{ \begin{pmatrix} C_{00} & * & * \\ c_{10}^T & \lambda_{11} & * \\ C_{20} & c_{21} & C_{22} \end{pmatrix} = \begin{pmatrix} C_{00} & * & * \\ c_{10}^T & \lambda_{11} & * \\ A_2 B_0^T + \hat{C}_{20} & A_2 b_1 + \hat{c}_{21} & A_2 B_2^T + B_2 A_2^T + \hat{C}_{22} \end{pmatrix} \right\}$
8	
7	$\left\{ \right\}$
5b	$\left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \leftarrow \left(\begin{array}{c c c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ \hline A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ \hline B_2 \end{array} \right)$
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
	endwhile
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge \neg(m(C_{BR}) < m(C)) \right\}$
1b	$\{C := AB^T + BA^T + \hat{C}.$

Step	Algorithm: $C := AB^T + BA^T + C$
1a	$\{C = \hat{C}\}$
4	$C \rightarrow \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right), A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right), B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right)$ <p>where C_{BR} is 0×0, A_B and B_B have 0 rows</p>
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
3	while $m(C_{BR}) < m(C)$ do
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge m(C_{BR}) < m(C) \right\}$
5a	$\left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \rightarrow \left(\begin{array}{cc c} C_{00} & * & * \\ c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ B_2 \end{array} \right)$ <p>where λ_{11} is 1×1, a_1 and b_1 have 1 row</p>
6	$\left\{ \left(\begin{array}{ccc} C_{00} & * & * \\ c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right) = \left(\begin{array}{ccc} C_{00} & * & * \\ c_{10}^T & \lambda_{11} & * \\ \hline A_2 B_0^T + \hat{C}_{20} & A_2 b_1 + \hat{c}_{21} & A_2 B_2^T + B_2 A_2^T + \hat{C}_{22} \end{array} \right) \right\}$
8	
7	$\left\{ \left(\begin{array}{ccc} C_{00} & * & * \\ c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right) = \left(\begin{array}{ccc} C_{00} & * & * \\ a_1^T B_0^T + \hat{c}_{10}^T & a_1^T b_1 + b_1^T a_1 + \hat{\lambda}_{11} & * \\ \hline A_2 B_0^T + \hat{C}_{20} & A_2 b_1 + B_2 a_1 + \hat{c}_{21} & A_2 B_2^T + B_2 A_2^T + \hat{C}_{22} \end{array} \right) \right\}$
5b	$\left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \leftarrow \left(\begin{array}{c c} C_{00} & * & * \\ c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ B_2 \end{array} \right)$
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
	endwhile
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge \neg(m(C_{BR}) < m(C)) \right\}$
1b	$\{C := AB^T + BA^T + \hat{C}\}$

Step	Algorithm: $C := AB^T + BA^T + C$
1a	$\{C = \hat{C}$
4	$C \rightarrow \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right), A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right), B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right)$ <p>where C_{BR} is 0×0, A_B and B_B have 0 rows</p>
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
3	while $m(C_{BR}) < m(C)$ do
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge m(C_{BR}) < m(C) \right\}$
5a	$\left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \rightarrow \left(\begin{array}{c c c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ \hline A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ \hline B_2 \end{array} \right)$ <p>where λ_{11} is 1×1, a_1 and b_1 have 1 row</p>
6	$\left\{ \left(\begin{array}{c c c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right) = \left(\begin{array}{c c c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ \hline A_2 B_0^T + \hat{C}_{20} & A_2 b_1 + \hat{c}_{21} & A_2 B_2^T + B_2 A_2^T + \hat{C}_{22} \end{array} \right) \right\}$
8	$\lambda_{11} := a_1^T b_1 + b_1^T a_1 + \lambda_{11}$ $c_{10}^T := a_1^T B_0^T + C_{20}$ $c_{21} := B_2 a_1 + c_{21}$
7	$\left\{ \left(\begin{array}{c c c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right) = \left(\begin{array}{c c c} C_{00} & * & * \\ \hline a_1^T B_0^T + \hat{c}_{10}^T & a_1^T b_1 + b_1^T a_1 + \hat{\lambda}_{11} & * \\ \hline A_2 B_0^T + \hat{C}_{20} & A_2 b_1 + B_2 a_1 + \hat{c}_{21} & A_2 B_2^T + B_2 A_2^T + \hat{C}_{22} \end{array} \right) \right\}$
5b	$\left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \leftarrow \left(\begin{array}{c c c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ \hline A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ \hline B_2 \end{array} \right)$
2	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \right\}$
	endwhile
2,3	$\left\{ \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) = \left(\begin{array}{c c} \hat{C}_{TL} & * \\ \hline A_B B_T^T + \hat{C}_{BL} & A_B B_B^T + B_B A_B^T + \hat{C}_{BR} \end{array} \right) \wedge \neg(m(C_{BR}) < m(C)) \right\}$
1b	$\{C := AB^T + BA^T + \hat{C}.$

	Algorithm: $C := AB^T + BA^T + C$
	$C \rightarrow \left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right), A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right), B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right)$ <p>where C_{BR} is 0×0, A_B and B_B have 0 rows</p>
	while $m(C_{BR}) < m(C)$ do
	$\left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \rightarrow \left(\begin{array}{cc c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ B_2 \end{array} \right)$ <p>where λ_{11} is 1×1, a_1 and b_1 have 1 row</p>
	$\lambda_{11} := a_1^T b_1 + b_1^T a_1 + \lambda_{11}$ $c_{10}^T := a_1^T B_0^T + C_{20}$ $c_{21} := B_2 a_1 + c_{21}$
	$\left(\begin{array}{c c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \leftarrow \left(\begin{array}{cc c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ B_2 \end{array} \right)$
	endwhile

Algorithm: $C := AB^T + BA^T + C$

$$C \rightarrow \left(\begin{array}{c|c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right), A \rightarrow \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right), B \rightarrow \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right)$$

where C_{BR} is 0×0 , A_B and B_B have 0 rows

while $m(C_{BR}) < m(C)$ **do**

$$\left(\begin{array}{c|c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \rightarrow \left(\begin{array}{cc|c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \rightarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ \hline A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \rightarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ \hline B_2 \end{array} \right)$$

where λ_{11} is 1×1 , a_1 and b_1 have 1 row

$$\lambda_{11} := a_1^T b_1 + b_1^T a_1 + \lambda_{11}$$

$$c_{10}^T := a_1^T B_0^T + C_{20}$$

$$c_{21} := B_2 a_1 + c_{21}$$

$$\left(\begin{array}{c|c} C_{TL} & * \\ \hline C_{BL} & C_{BR} \end{array} \right) \leftarrow \left(\begin{array}{cc|c} C_{00} & * & * \\ \hline c_{10}^T & \lambda_{11} & * \\ \hline C_{20} & c_{21} & C_{22} \end{array} \right), \left(\begin{array}{c} A_T \\ \hline A_B \end{array} \right) \leftarrow \left(\begin{array}{c} A_0 \\ \hline a_1^T \\ \hline A_2 \end{array} \right), \left(\begin{array}{c} B_T \\ \hline B_B \end{array} \right) \leftarrow \left(\begin{array}{c} B_0 \\ \hline b_1^T \\ \hline B_2 \end{array} \right)$$

endwhile