Step	Algorithm:
1a	
4	where
2	
3	while do
2,3	$\wedge$
5a	where
6	
8	
5b	
7	
2	
	endwhile
2,3	$\wedge\ \neg($)
1b	

Step	Algorithm: $[C] := \text{SYR2K\_BLK\_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	$A \rightarrow \left(A_L \middle\vert A_R\right)$, $B \rightarrow \left(B_L \middle\vert B_R\right)$ where A_L has 0 columns, B_L has 0 columns
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
3	while $n(A_L) < n(A)$ do
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge n(A_L) < n(A)$
5a	**Determine block size** b $\left(A_L \middle\vert A_R\right) \rightarrow \left(A_0 \middle\vert A_1 \middle\vert A_2\right)$, $\left(B_L \middle\vert B_R\right) \rightarrow \left(B_0 \middle\vert B_1 \middle\vert B_2\right)$ where A_1 has b columns, B_1 has b columns
6	$C = A_0 B_0^T + B_0 A_0^T + \widehat{C}$
8	$C := C + A_1 B_1^T + B_1 A_1^T$
5b	$\left(A_L \middle\vert A_R\right) \leftarrow \left(A_0 \middle\vert A_1 \middle\vert A_2\right)$, $\left(B_L \middle\vert B_R\right) \leftarrow \left(B_0 \middle\vert B_1 \middle\vert B_2\right)$
7	$C = A_0 B_0^T + B_0 A_0^T + A_1 B_1^T + B_1 A_1^T + \widehat{C}$
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
	endwhile
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge \neg(n(A_L) < n(A))$
1b	$[C] = \text{syr2k}(A, B, \widehat{C})$

Algorithm: $[C] := \text{SYR2K\_BLK\_VAR5}(A, B, C)$
$A \rightarrow \left(A_L \middle\vert A_R\right)$, $B \rightarrow \left(B_L \middle\vert B_R\right)$ where A_L has 0 columns, B_L has 0 columns while $n(A_L) < n(A)$ do **Determine block size** b $\left(A_L \middle\vert A_R\right) \rightarrow \left(A_0 \middle\vert A_1 \middle\vert A_2\right)$, $\left(B_L \middle\vert B_R\right) \rightarrow \left(B_0 \middle\vert B_1 \middle\vert B_2\right)$ where A_1 has b columns, B_1 has b columns
$C := C + A_1 B_1^T + B_1 A_1^T$
$\left(A_L \middle\vert A_R\right) \leftarrow \left(A_0 \middle\vert A_1 \middle\vert A_2\right)$, $\left(B_L \middle\vert B_R\right) \leftarrow \left(B_0 \middle\vert B_1 \middle\vert B_2\right)$ endwhile

Step	Algorithm: $[C] := \text{SYR2K\_BLK\_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	where
2	
3	while do
2,3	$\wedge$
5a	**Determine block size** where
6	
8	
5b	
7	
2	
	endwhile
2,3	$\wedge \neg($ $)$
1b	$[C] = \text{syr2k}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYR2K\_BLK\_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	where
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
3	while do
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge$
5a	**Determine block size** where
6	
8	
5b	
7	
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
	endwhile
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge \neg($ $)$
1b	$[C] = \text{syr2k}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYR2K\_BLK\_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	where
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
3	while $n(A_L) < n(A)$ do
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge n(A_L) < n(A)$
5a	**Determine block size** where
6	
8	
5b	
7	
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
	endwhile
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge \neg(n(A_L) < n(A))$
1b	$[C] = \text{syr2k}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYR2K\_BLK\_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	$A \rightarrow \left(A_L \middle\vert A_R \right)$, $B \rightarrow \left(B_L \middle\vert B_R \right)$ where A_L has 0 columns, B_L has 0 columns
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
3	while $n(A_L) < n(A)$ do
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge n(A_L) < n(A)$
5a	**Determine block size** where
6	
8	
5b	
7	
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
	endwhile
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge \neg(n(A_L) < n(A))$
1b	$[C] = \text{syr2k}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYR2K\_BLK\_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	$A \rightarrow \left(\begin{array}{c\|c} A_L & A_R \end{array}\right)$, $B \rightarrow \left(\begin{array}{c\|c} B_L & B_R \end{array}\right)$ where A_L has 0 columns, B_L has 0 columns
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
3	while $n(A_L) < n(A)$ do
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge n(A_L) < n(A)$
5a	**Determine block size** b $\left(\begin{array}{c\|c} A_L & A_R \end{array}\right) \rightarrow \left(\begin{array}{c\|c\|c} A_0 & A_1 & A_2 \end{array}\right)$, $\left(\begin{array}{c\|c} B_L & B_R \end{array}\right) \rightarrow \left(\begin{array}{c\|c\|c} B_0 & B_1 & B_2 \end{array}\right)$ where A_1 has b columns, B_1 has b columns
6	
8	
5b	$\left(\begin{array}{c\|c} A_L & A_R \end{array}\right) \leftarrow \left(\begin{array}{c\|c\|c} A_0 & A_1 & A_2 \end{array}\right)$, $\left(\begin{array}{c\|c} B_L & B_R \end{array}\right) \leftarrow \left(\begin{array}{c\|c\|c} B_0 & B_1 & B_2 \end{array}\right)$
7	
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
	endwhile
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge \neg(n(A_L) < n(A))$
1b	$[C] = \text{syr2k}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYR2K\_BLK\_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	$A \rightarrow \left(A_L \middle\vert A_R\right)$, $B \rightarrow \left(B_L \middle\vert B_R\right)$ where A_L has 0 columns, B_L has 0 columns
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
3	while $n(A_L) < n(A)$ do
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge n(A_L) < n(A)$
5a	**Determine block size** b $\left(A_L \middle\vert A_R\right) \rightarrow \left(A_0 \middle\vert A_1 \middle\vert A_2\right)$, $\left(B_L \middle\vert B_R\right) \rightarrow \left(B_0 \middle\vert B_1 \middle\vert B_2\right)$ where A_1 has b columns, B_1 has b columns
6	$C = A_0 B_0^T + B_0 A_0^T + \widehat{C}$
8	
5b	$\left(A_L \middle\vert A_R\right) \leftarrow \left(A_0 \middle\vert A_1 \middle\vert A_2\right)$, $\left(B_L \middle\vert B_R\right) \leftarrow \left(B_0 \middle\vert B_1 \middle\vert B_2\right)$
7	
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
	endwhile
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge \neg(n(A_L) < n(A))$
1b	$[C] = \text{syr2k}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYR2K\_BLK\_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	$A \rightarrow \left(\begin{array}{c\|c} A_L & A_R \end{array}\right)$, $B \rightarrow \left(\begin{array}{c\|c} B_L & B_R \end{array}\right)$ where A_L has 0 columns, B_L has 0 columns
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
3	while $n(A_L) < n(A)$ do
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge n(A_L) < n(A)$
5a	**Determine block size** b $\left(\begin{array}{c\|c} A_L & A_R \end{array}\right) \rightarrow \left(\begin{array}{c\|c\|c} A_0 & A_1 & A_2 \end{array}\right)$, $\left(\begin{array}{c\|c} B_L & B_R \end{array}\right) \rightarrow \left(\begin{array}{c\|c\|c} B_0 & B_1 & B_2 \end{array}\right)$ where A_1 has b columns, B_1 has b columns
6	$C = A_0 B_0^T + B_0 A_0^T + \widehat{C}$
8	
5b	$\left(\begin{array}{c\|c} A_L & A_R \end{array}\right) \leftarrow \left(\begin{array}{c\|c\|c} A_0 & A_1 & A_2 \end{array}\right)$, $\left(\begin{array}{c\|c} B_L & B_R \end{array}\right) \leftarrow \left(\begin{array}{c\|c\|c} B_0 & B_1 & B_2 \end{array}\right)$
7	$C = A_0 B_0^T + B_0 A_0^T + A_1 B_1^T + B_1 A_1^T + \widehat{C}$
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
	endwhile
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge \neg(n(A_L) < n(A))$
1b	$[C] = \text{syr2k}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYR2K\_BLK\_VAR5}(A, B, C)$
1a	$C = \widehat{C}$
4	$A \rightarrow \left(\begin{array}{c\|c} A_L & A_R \end{array}\right)$, $B \rightarrow \left(\begin{array}{c\|c} B_L & B_R \end{array}\right)$ where A_L has 0 columns, B_L has 0 columns
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
3	while $n(A_L) < n(A)$ do
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge n(A_L) < n(A)$
5a	**Determine block size** b $\left(\begin{array}{c\|c} A_L & A_R \end{array}\right) \rightarrow \left(\begin{array}{c\|c\|c} A_0 & A_1 & A_2 \end{array}\right)$, $\left(\begin{array}{c\|c} B_L & B_R \end{array}\right) \rightarrow \left(\begin{array}{c\|c\|c} B_0 & B_1 & B_2 \end{array}\right)$ where A_1 has b columns, B_1 has b columns
6	$C = A_0 B_0^T + B_0 A_0^T + \widehat{C}$
8	$C := C + A_1 B_1^T + B_1 A_1^T$
5b	$\left(\begin{array}{c\|c} A_L & A_R \end{array}\right) \leftarrow \left(\begin{array}{c\|c\|c} A_0 & A_1 & A_2 \end{array}\right)$, $\left(\begin{array}{c\|c} B_L & B_R \end{array}\right) \leftarrow \left(\begin{array}{c\|c\|c} B_0 & B_1 & B_2 \end{array}\right)$
7	$C = A_0 B_0^T + B_0 A_0^T + A_1 B_1^T + B_1 A_1^T + \widehat{C}$
2	$C = A_L B_L^T + B_L A_L^T + \widehat{C}$
	endwhile
2,3	$C = A_L B_L^T + B_L A_L^T + \widehat{C} \wedge \neg(n(A_L) < n(A))$
1b	$[C] = \text{syr2k}(A, B, \widehat{C})$

Step	Algorithm: $[C] := \text{SYR2K\_BLK\_VAR5}(A, B, C)$
	$A \rightarrow \left(\begin{array}{c\|c} A_L & A_R \end{array}\right)$, $B \rightarrow \left(\begin{array}{c\|c} B_L & B_R \end{array}\right)$ where A_L has 0 columns, B_L has 0 columns
	while $n(A_L) < n(A)$ do
	Determine block size b $\left(\begin{array}{c\|c} A_L & A_R \end{array}\right) \rightarrow \left(\begin{array}{c\|c\|c} A_0 & A_1 & A_2 \end{array}\right)$, $\left(\begin{array}{c\|c} B_L & B_R \end{array}\right) \rightarrow \left(\begin{array}{c\|c\|c} B_0 & B_1 & B_2 \end{array}\right)$ where A_1 has b columns, B_1 has b columns
	$C := C + A_1 B_1^T + B_1 A_1^T$
	$\left(\begin{array}{c\|c} A_L & A_R \end{array}\right) \leftarrow \left(\begin{array}{c\|c\|c} A_0 & A_1 & A_2 \end{array}\right)$, $\left(\begin{array}{c\|c} B_L & B_R \end{array}\right) \leftarrow \left(\begin{array}{c\|c\|c} B_0 & B_1 & B_2 \end{array}\right)$
	endwhile

Algorithm: $[C] := \text{SYR2K\_BLK\_VAR5}(A, B, C)$
$A \rightarrow \left(\begin{array}{c\|c} A_L & A_R \end{array}\right)$, $B \rightarrow \left(\begin{array}{c\|c} B_L & B_R \end{array}\right)$ where A_L has 0 columns, B_L has 0 columns while $n(A_L) < n(A)$ do **Determine block size** b $\left(\begin{array}{c\|c} A_L & A_R \end{array}\right) \rightarrow \left(\begin{array}{c\|c\|c} A_0 & A_1 & A_2 \end{array}\right)$, $\left(\begin{array}{c\|c} B_L & B_R \end{array}\right) \rightarrow \left(\begin{array}{c\|c\|c} B_0 & B_1 & B_2 \end{array}\right)$ where A_1 has b columns, B_1 has b columns
$C := C + A_1 B_1^T + B_1 A_1^T$
$\left(\begin{array}{c\|c} A_L & A_R \end{array}\right) \leftarrow \left(\begin{array}{c\|c\|c} A_0 & A_1 & A_2 \end{array}\right)$, $\left(\begin{array}{c\|c} B_L & B_R \end{array}\right) \leftarrow \left(\begin{array}{c\|c\|c} B_0 & B_1 & B_2 \end{array}\right)$ endwhile