$$
A = \begin{bmatrix}
a_{00} & a_{01} & a_{02} & a_{03} & a_{04} \\
a_{10} & a_{11} & a_{12} & a_{13} & a_{14} \\
a_{20} & a_{21} & a_{22} & a_{23} & a_{24} \\
a_{30} & a_{31} & a_{32} & a_{33} & a_{34} \\
a_{40} & a_{41} & a_{42} & a_{43} & a_{44}
\end{bmatrix}
$$

$$
B = \begin{bmatrix}
b_{00} & b_{01} & b_{02} \\
b_{10} & b_{11} & b_{12} \\
b_{20} & b_{21} & b_{22}
\end{bmatrix}
$$

Kernel weights (overlaid): $w_{22}, w_{21}, w_{20}, w_{12}, w_{11}, w_{10}, w_{02}, w_{01}, w_{00}$

$$
W \times
\begin{bmatrix}
b_{00} \\ b_{01} \\ b_{02} \\ b_{10} \\ b_{11} \\ b_{12} \\ b_{20} \\ b_{21} \\ b_{22}
\end{bmatrix}
=
\begin{bmatrix}
a_{00} \\ a_{01} \\ a_{02} \\ a_{03} \\ a_{04} \\ a_{10} \\ \vdots \\ \vdots \\ a_{34} \\ a_{40} \\ a_{41} \\ a_{42} \\ a_{43} \\ a_{44}
\end{bmatrix}
$$

where the rows of $W$ contain the kernel weights $w_{00}, w_{01}, w_{02}, w_{10}, w_{11}, w_{12}, w_{20}, w_{21}, w_{22}$ arranged in a sparse (Toeplitz) pattern:

Row 1: $w_{00}\ w_{01}\ w_{02}\ \dots\ w_{10}\ w_{11}\ w_{12}\ \dots\ w_{20}\ w_{21}\ w_{22}$
Row 2: $w_{00}\ w_{01}\ w_{02}\ \dots\ w_{10}\ w_{11}\ w_{12}\ \dots\ w_{20}\ w_{21}\ w_{22}$
Row 3: $w_{00}\ w_{01}\ w_{02}\ \dots\ w_{10}\ w_{11}\ w_{12}\ \dots\ w_{20}\ w_{21}\ w_{22}$
Row 4: $w_{00}\ w_{01}\ w_{02}\ \dots\ w_{10}\ w_{11}\ w_{12}\ \dots\ w_{20}\ w_{21}\ w_{22}$
Row 5: $w_{00}\ w_{01}\ w_{02}\ \dots\ w_{10}\ w_{11}\ w_{12}\ \dots\ w_{20}\ w_{21}\ w_{22}$
Row 6: $w_{00}\ w_{01}\ w_{02}\ \dots\ w_{10}\ w_{11}\ w_{12}\ \dots\ w_{20}\ w_{21}\ w_{22}$
Row 7: $w_{00}\ w_{01}\ w_{02}\ \dots\ w_{10}\ w_{11}\ w_{12}\ \dots\ w_{20}\ w_{21}\ w_{22}$
Row 8: $w_{00}\ w_{01}\ w_{02}\ \dots\ w_{10}\ w_{11}\ w_{12}\ \dots\ w_{20}\ w_{21}\ w_{22}$
Row 9: $w_{00}\ w_{01}\ w_{02}\ \dots\ w_{10}\ w_{11}\ w_{12}\ \dots\ w_{20}\ w_{21}\ w_{22}$