Transposed convolution

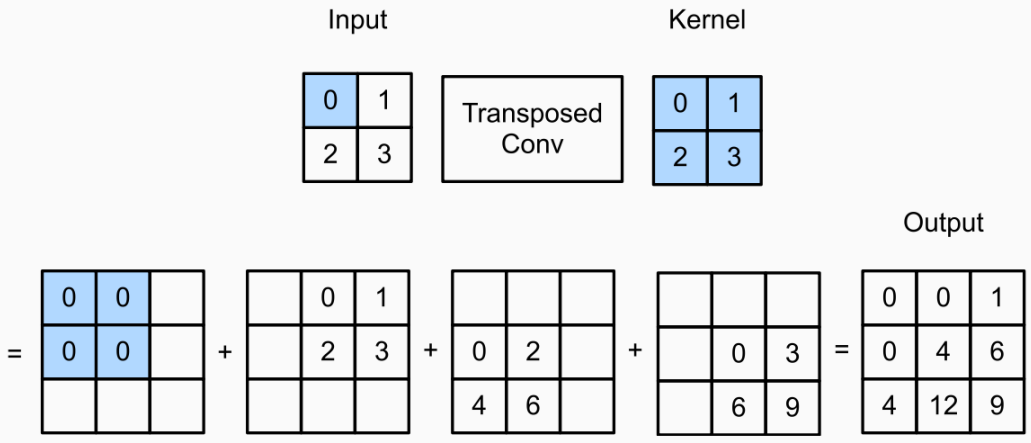

Fig. 13.10.1 Transposed convolution with a 2×2 kernel. The shaded portions are a portion of an intermediate tensor as well as the input and kernel tensor elements used for the computation.

We can implement this basic transposed convolution operation `trans_conv` for a input matrix X and a kernel matrix K.

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```
def trans_conv(X, K):
    h, w = K.shape
    Y = np.zeros((X.shape[0] + h - 1, X.shape[1] + w - 1))
    for i in range(X.shape[0]):
        for j in range(X.shape[1]):
            Y[i: i + h, j: j + w] += X[i, j] * K
    return Y
```

Drawback of Transposed Convolutions

https://distill.pub/2016/deconv-checkerboard/

Explains why