# Up-convolution

# Inverse of strided convolution



Strided conv

Upsampling
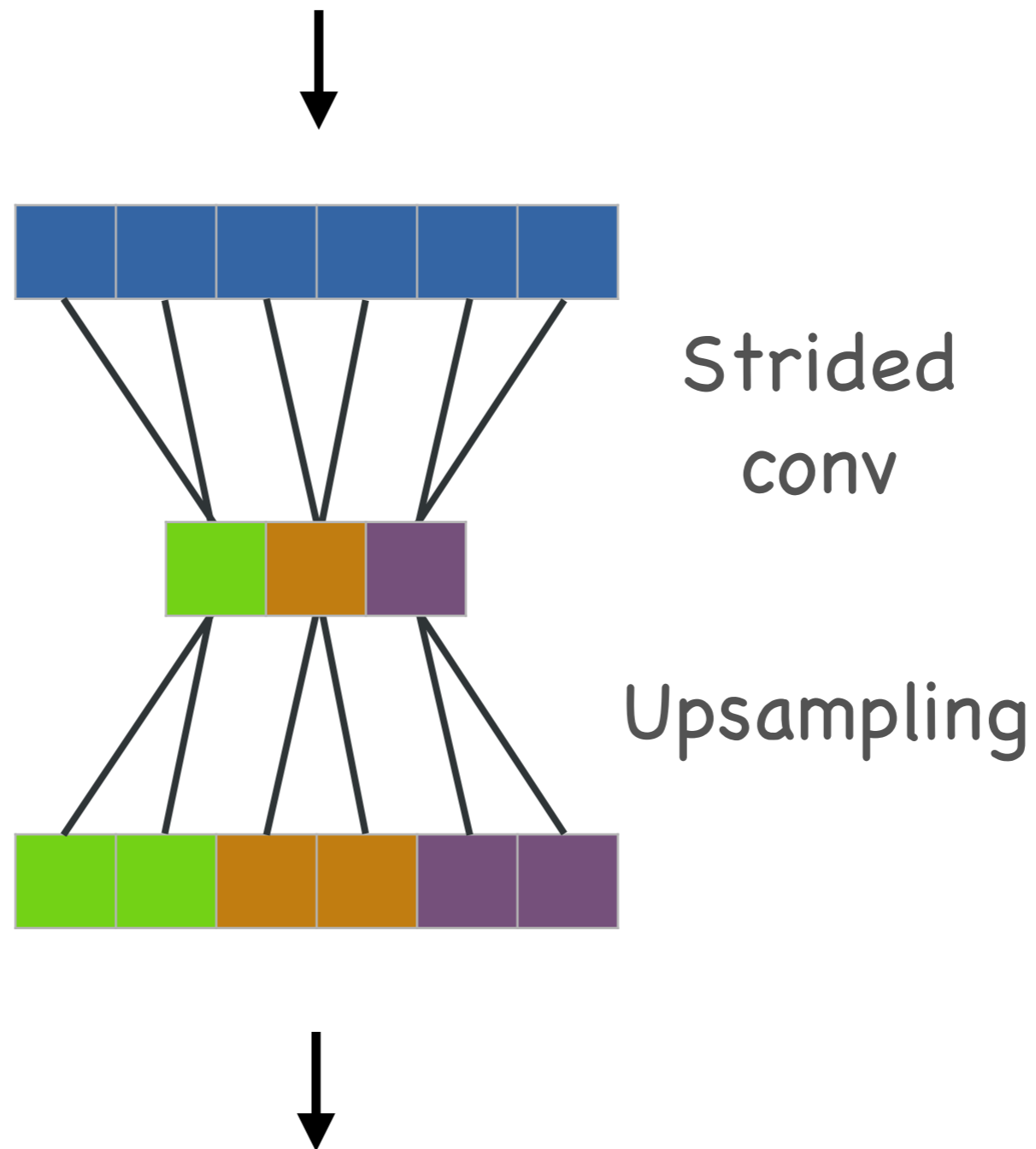
# Up-convolution

- Dilation of the input

*

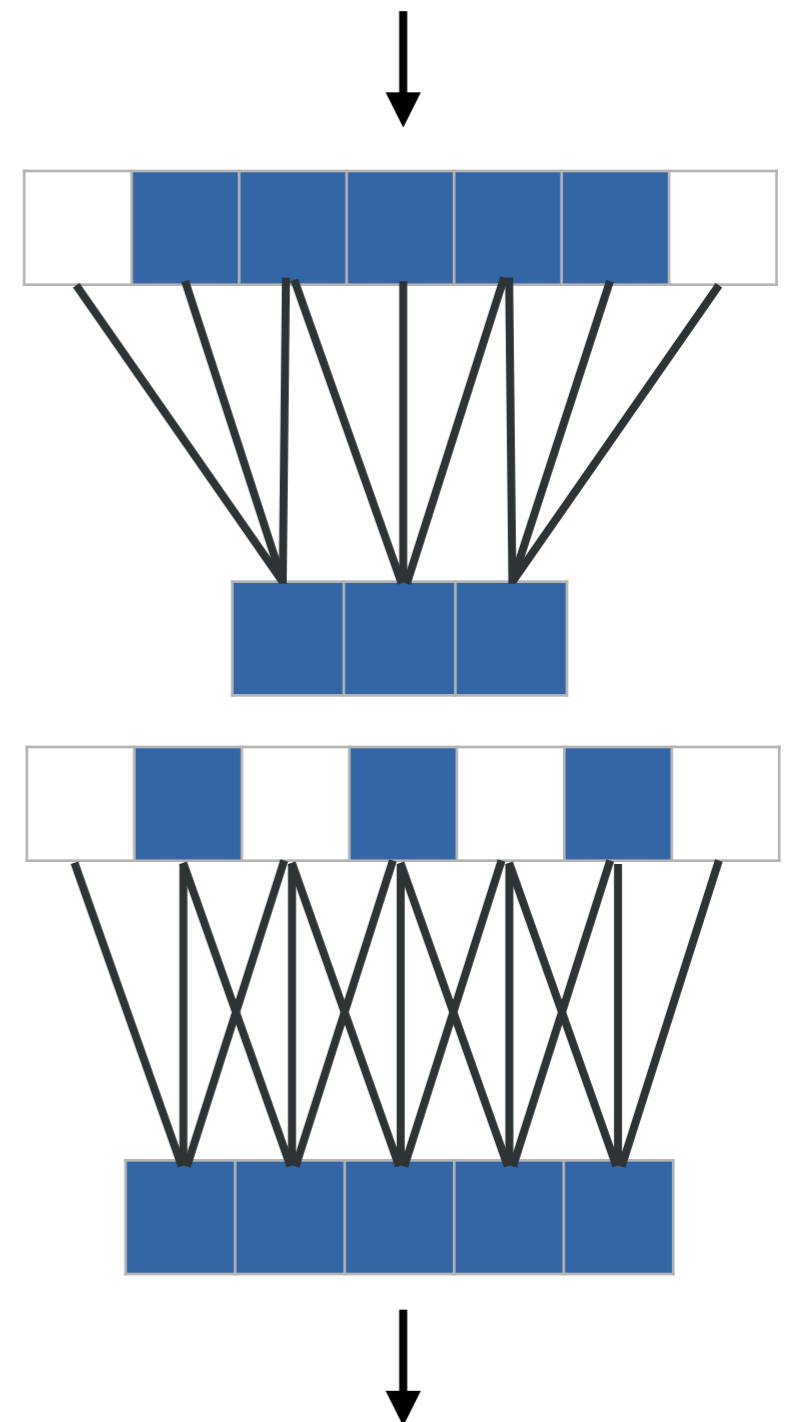|   |   |   |
|---|---|---|
| a | b | c |
| d | e | f |
| g | h | i |
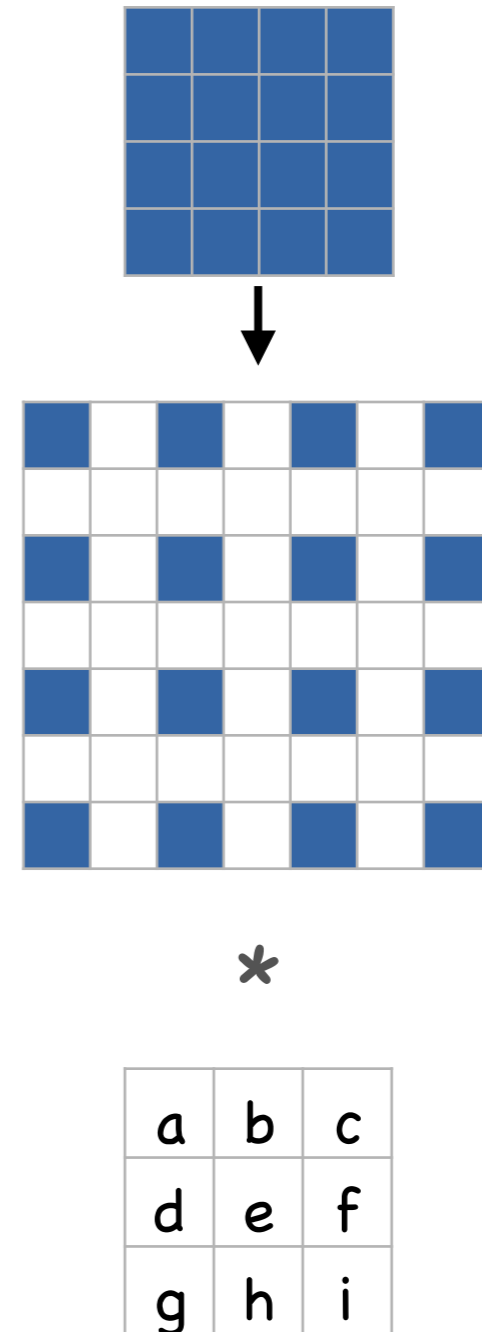
# Rounding

- Strided convolution rounds down

- How to correct for this?

# Up-convolution in action

- Used closer to output layers

```
        ↓
     ┌─────────┐
     │  Conv   │
     └─────────┘
     ┌─────────┐
     │  Conv   │
     └─────────┘
     ┌─────────┐
     │  Conv   │
     └─────────┘
     ┌─────────┐
     │ Up-Conv │
     └─────────┘
     ┌─────────┐
     │ Up-Conv │
     └─────────┘
     ┌─────────┐
     │ Up-Conv │
     └─────────┘
        ↓
```

# Up-convolutions and skip connections

- Provides lower-level high-resolution features to output

| Conv |
|------|
| Conv |
| Conv |
| Up-Conv |
| Up-Conv |
| Up-Conv |
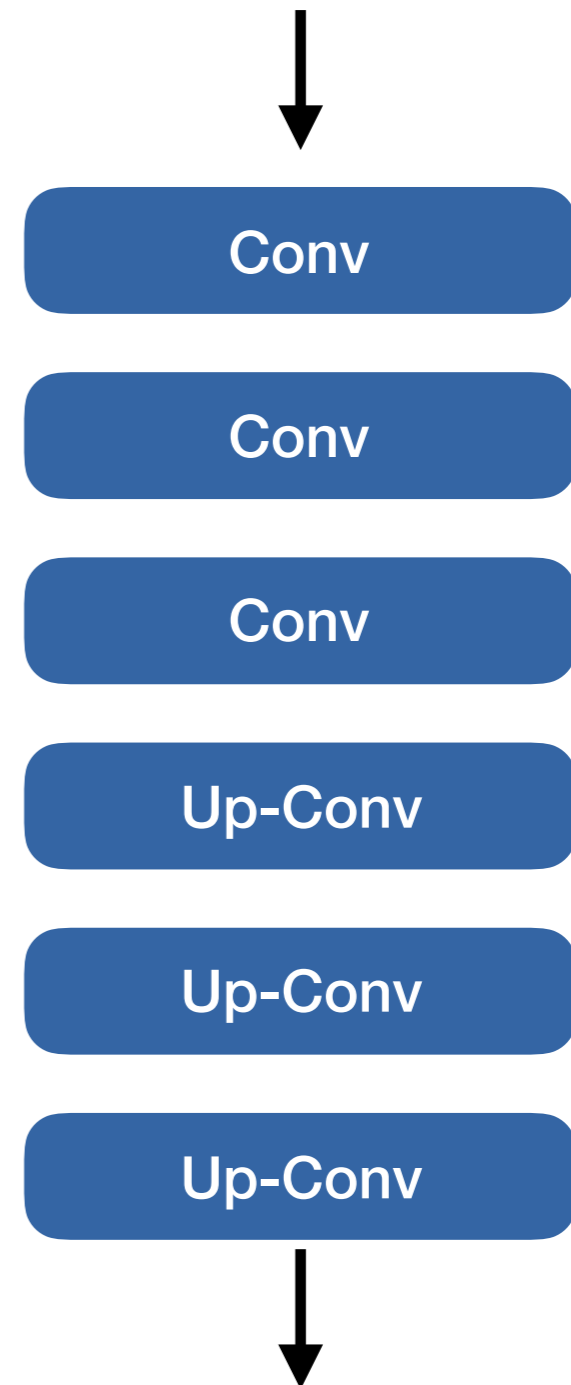
# The many names of up-convolution

- Transpose convolution

- "Deconvolution"

- fractionally strided convolutions