Principles of Dropout

Training vs Inference

Training

✓	X	✓
X	✓	X
✓	✓	X

→

Inference

✓	✓	✓
✓	✓	✓
✓	✓	✓

Typical Dropout Rate

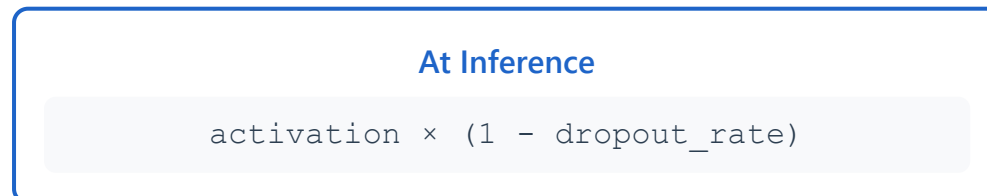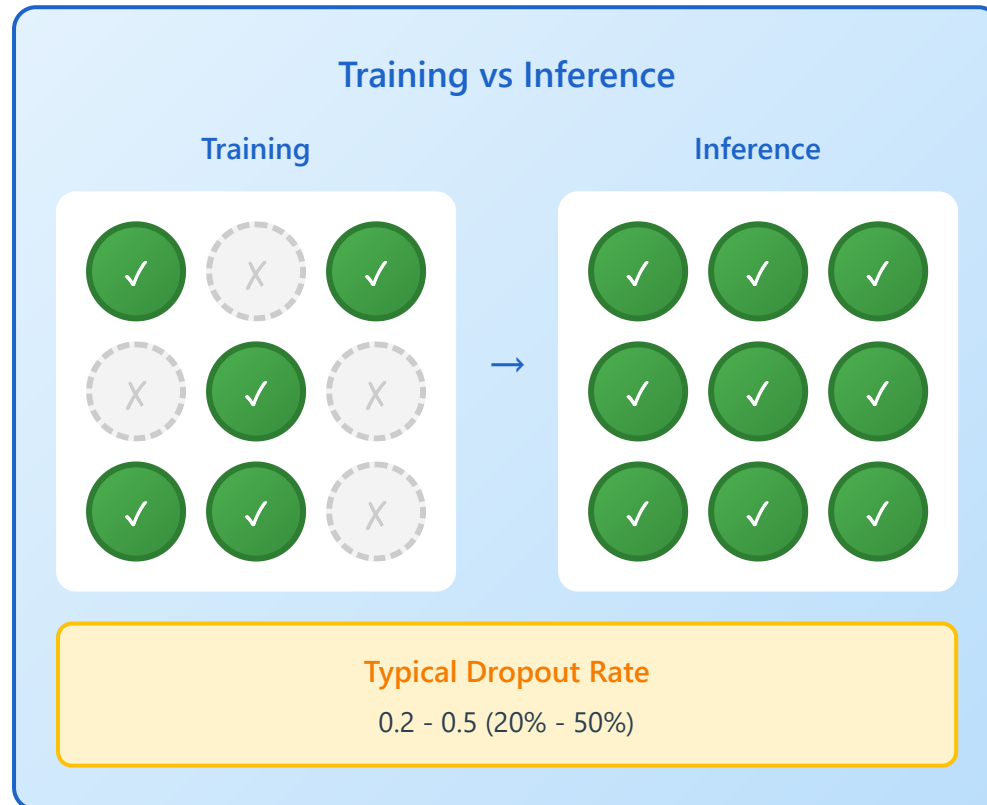0.2 - 0.5 (20% - 50%)

At Inference

```
activation × (1 - dropout_rate)
```

Key Principles

Randomly drops neurons during training (output set to 0)

Prevents **co-adaptation** of neurons

Trains **ensemble of sub-networks** simultaneously

Powerful regularization technique

✓ **Main Benefit**

Reduces **overfitting significantly** in large networks