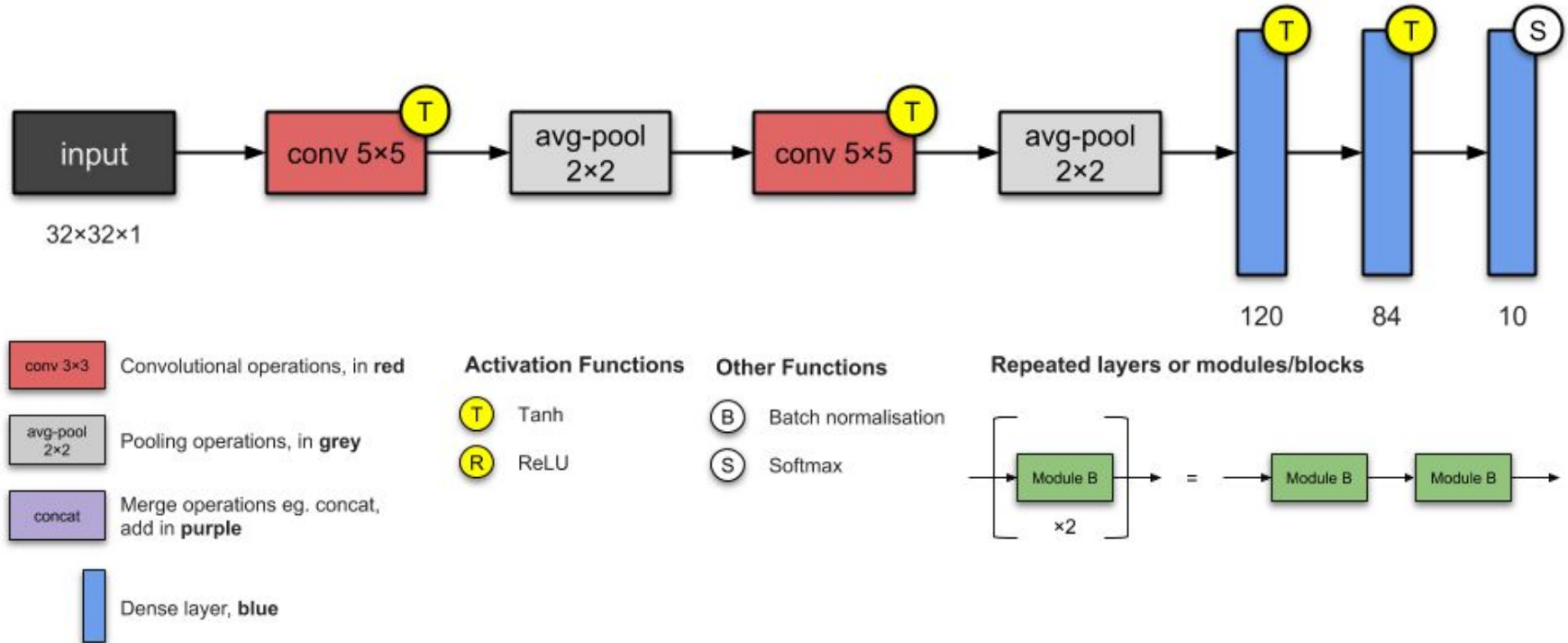


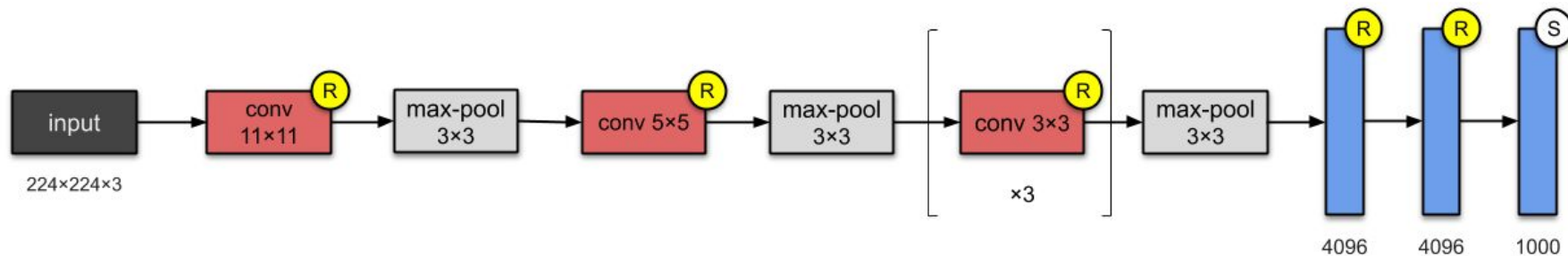
# CNN Architectures

- LeNet-5 (1998)



# CNN Architectures

- AlexNet (2011-2012)



conv  $3 \times 3$  Convolutional operations, in red

avg-pool  $2 \times 2$  Pooling operations, in grey

concat Merge operations eg. concat, add in purple

Dense layer, blue

## Activation Functions

T Tanh

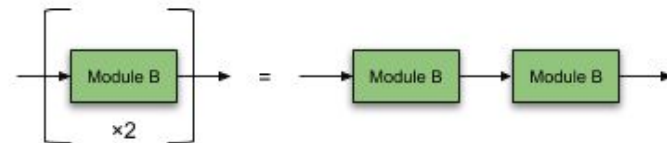
R ReLU

## Other Functions

B Batch normalisation

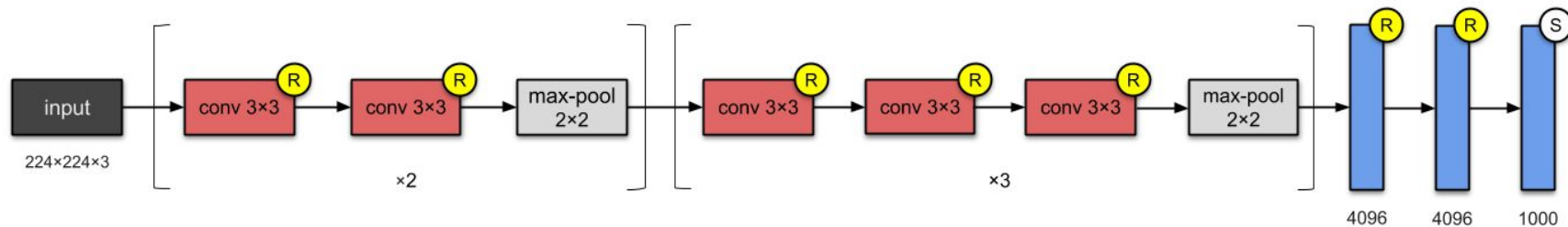
S Softmax

## Repeated layers or modules/blocks

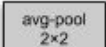


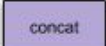
# CNN Architectures


- VGG-16 (2014)



  $\text{conv } 3 \times 3$  Convolutional operations, in **red**

  $\text{avg-pool } 2 \times 2$  Pooling operations, in **grey**

  $\text{concat}$  Merge operations eg. concat, add in **purple**

 Dense layer, **blue**

## Activation Functions

 Tanh

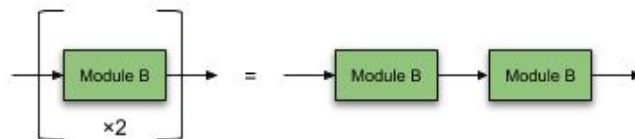
 ReLU

## Other Functions

 Batch normalisation

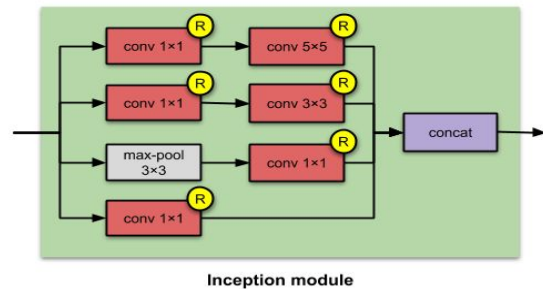
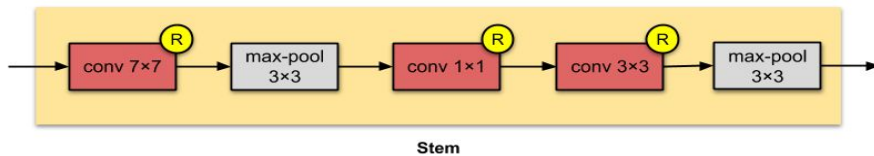
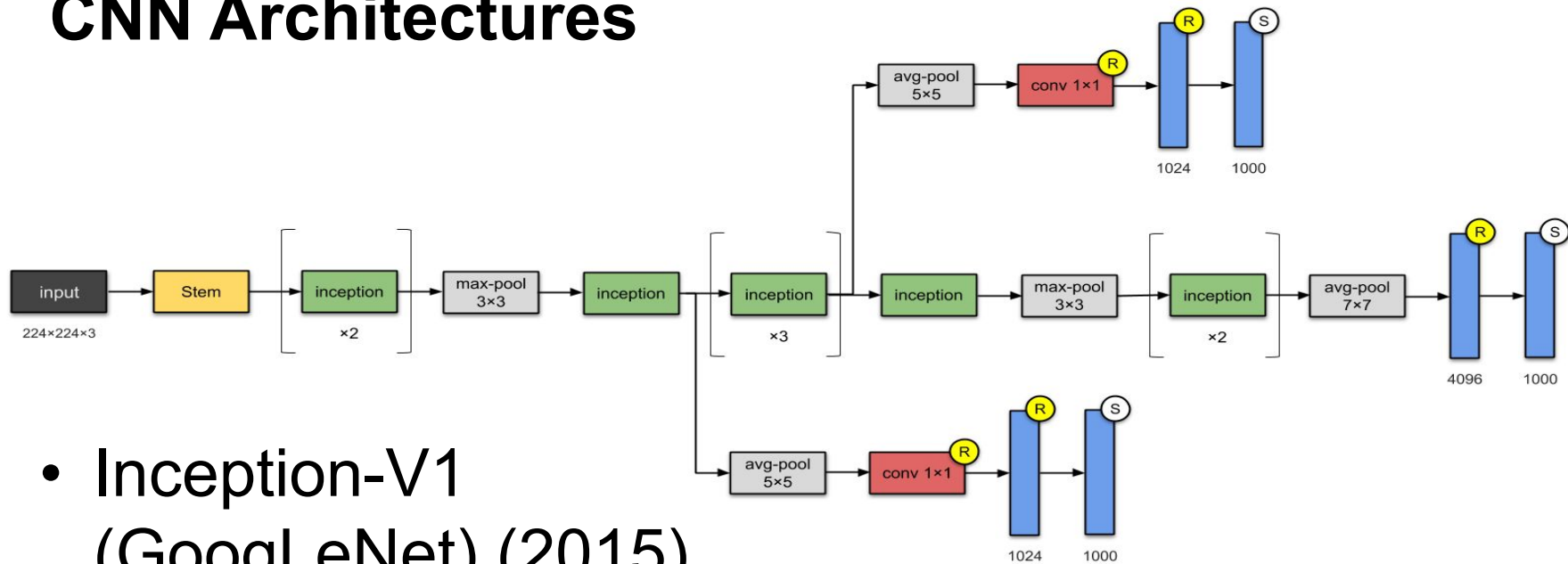
 Softmax

## Repeated layers or modules/blocks

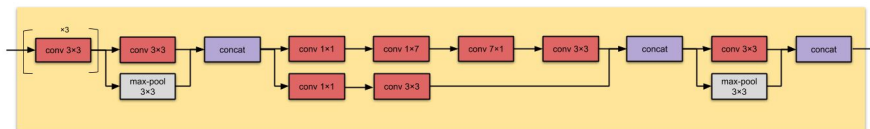
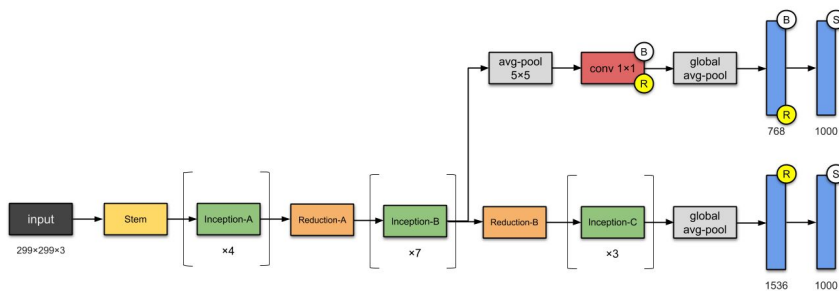


# CNN Architectures

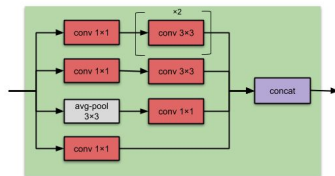
- Inception-V1  
(GoogLeNet) (2015)



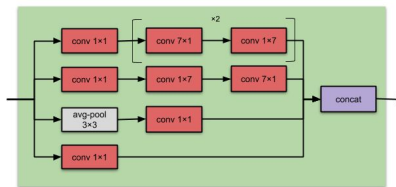
- Inception-V4 (2016)



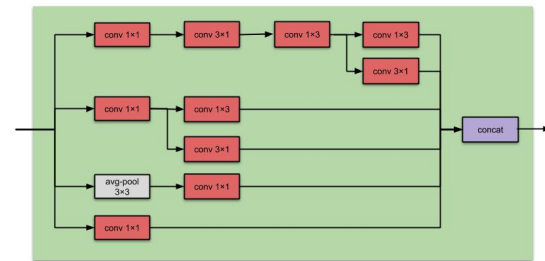
Stem



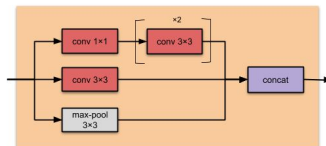
Inception-A



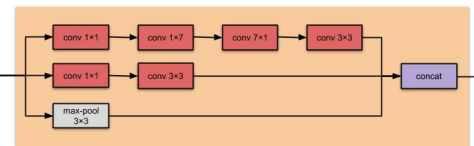
Inception-B



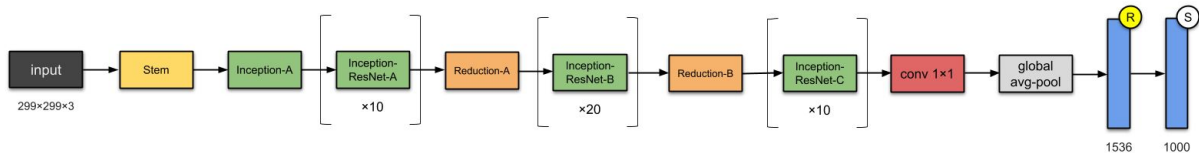
Inception-C



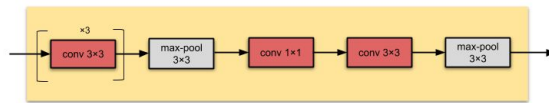
Reduction-A



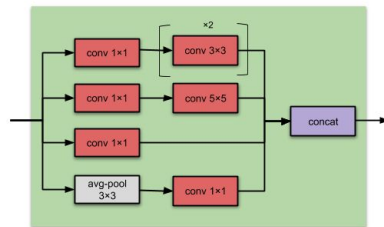
Reduction-B



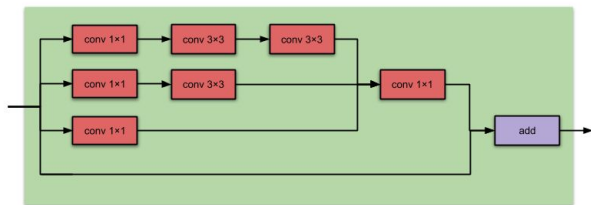
# - Inception-Resnet-V2



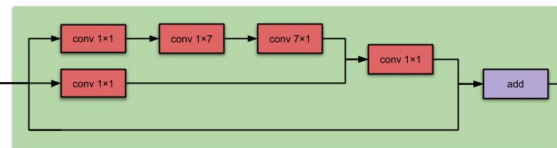
Stem



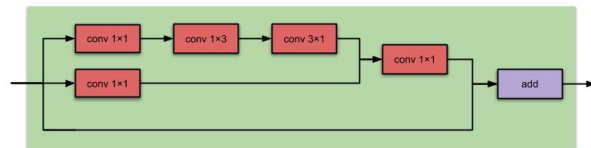
Inception-A



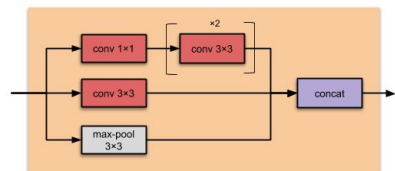
Inception-ResNet-A



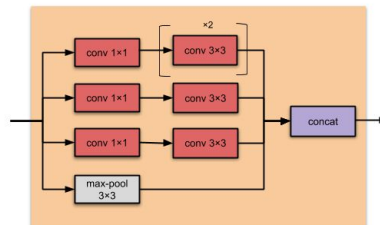
Inception-ResNet-B



Inception-ResNet-C



Reduction-A



Reduction-B