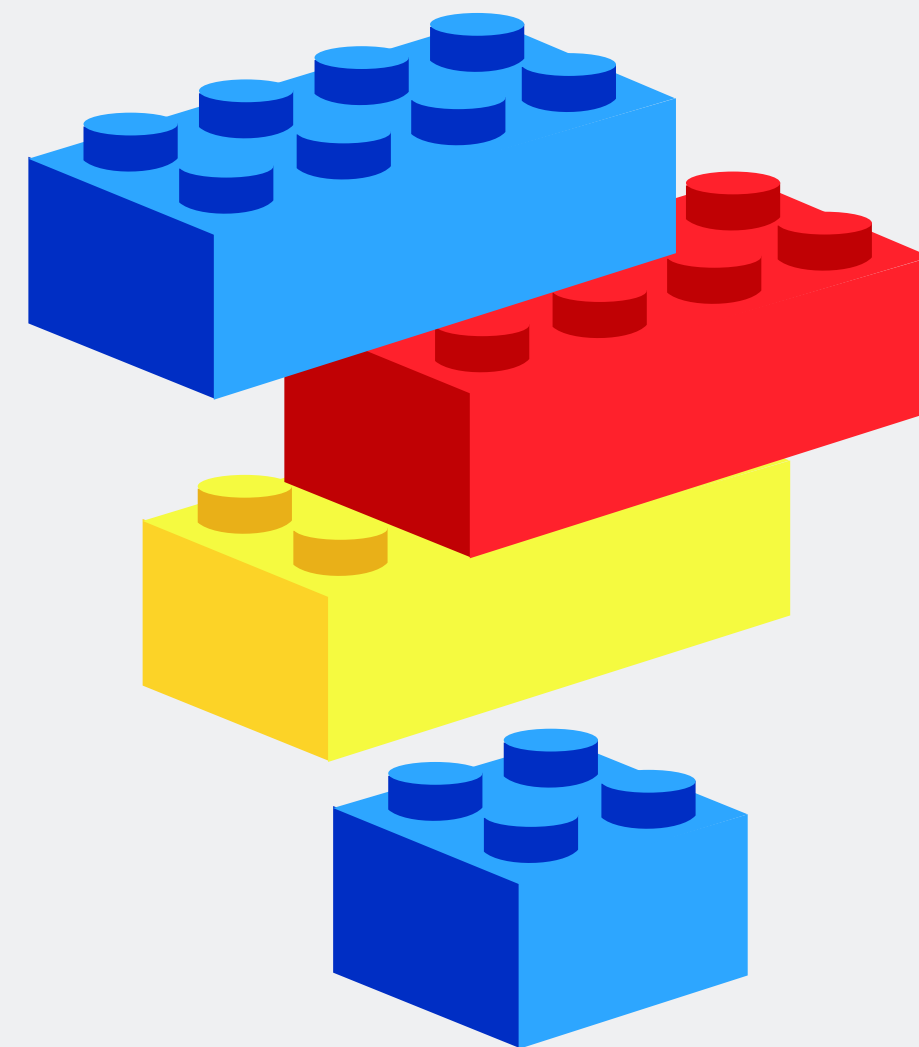




YOLOv3 & YOLOv4 Architecture Summary



Putting it all together

Title Page

Title Page

Summary

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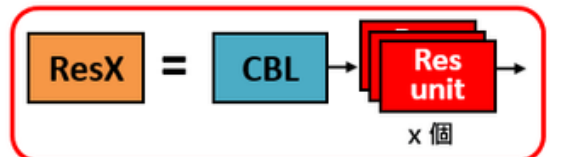
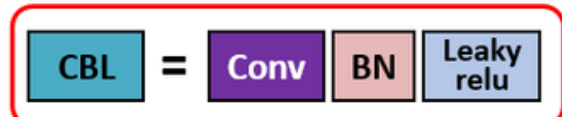
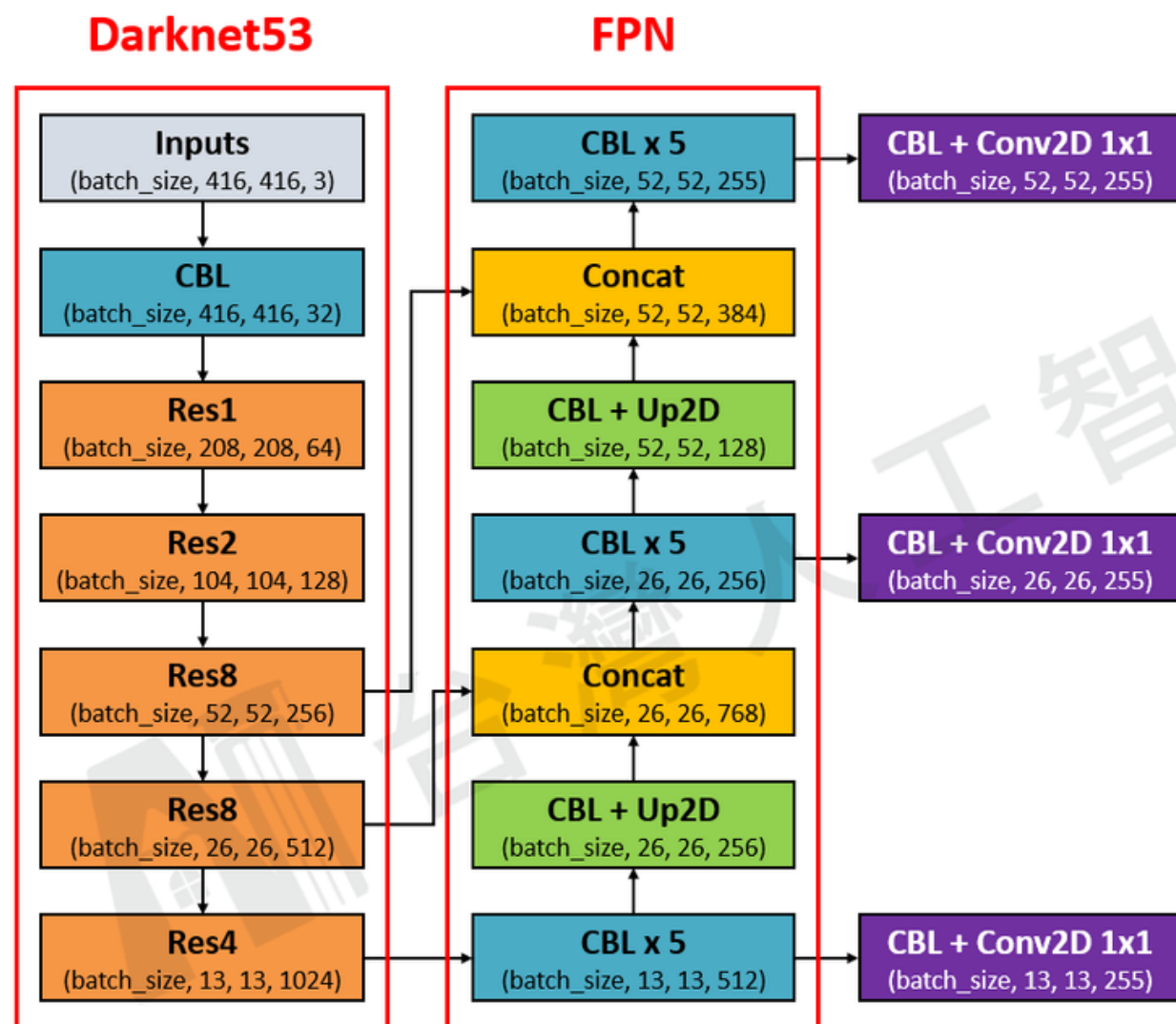
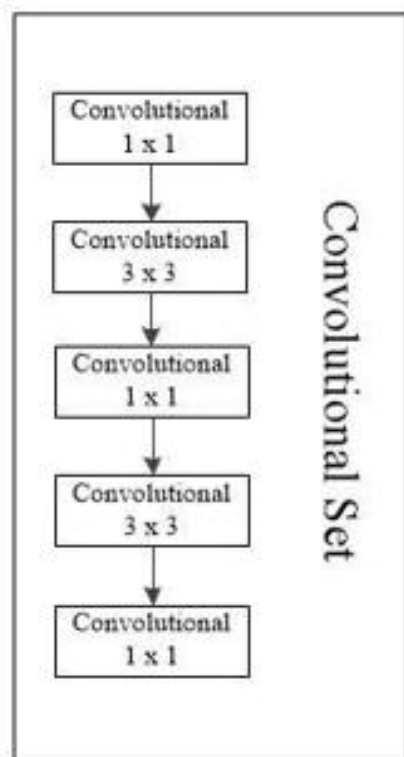
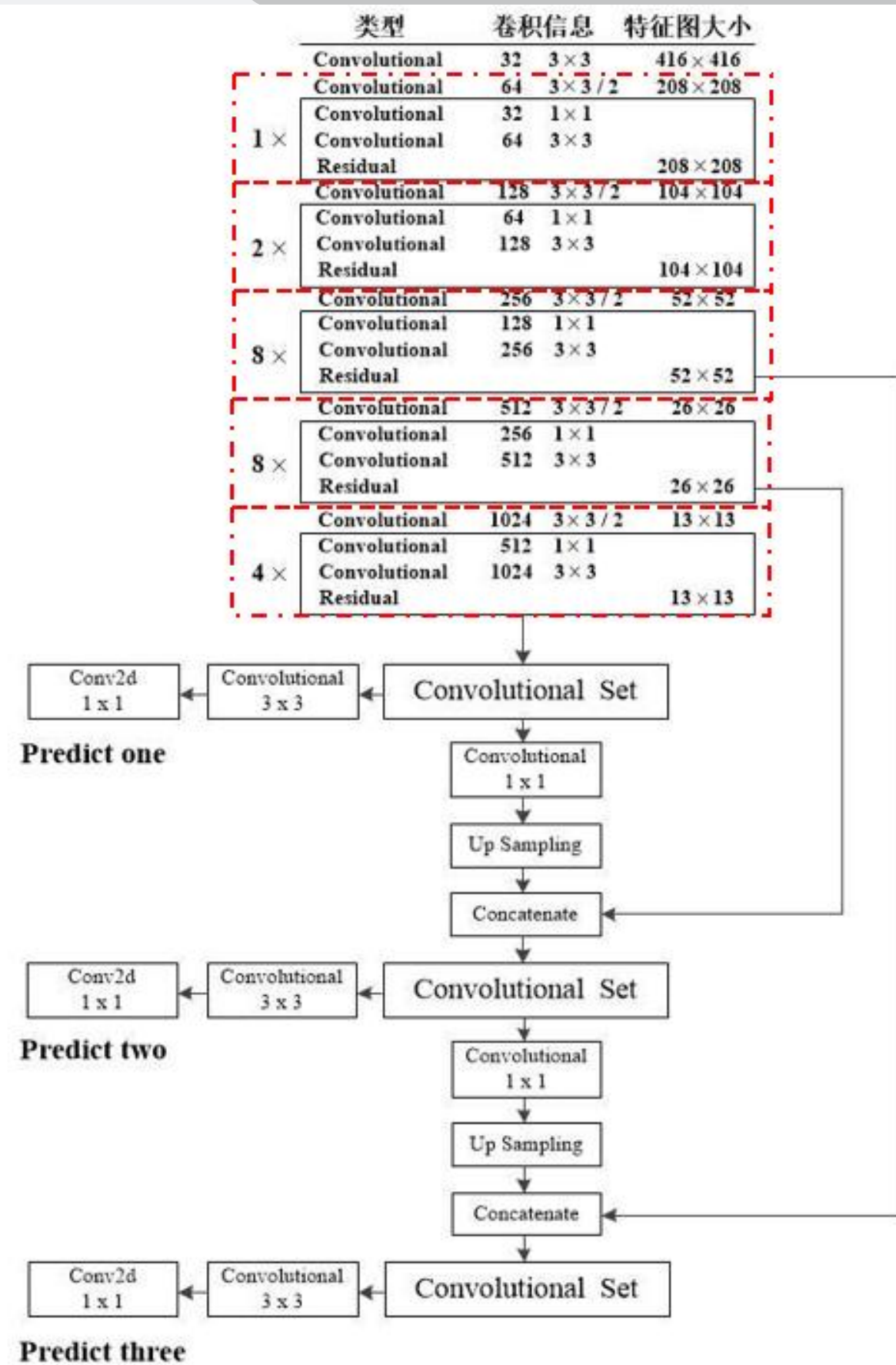
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🔍 Summary

	YOLOv3	YOLOv4
Backbone	Darknet53	CSPDarknet53
Neck	FPN	PANet + SPP
Head	YOLO	YOLO
Activations	leaky-ReLU	leaky-ReLU + Mish
Bounding box regression loss	MSE loss	CloU-loss
Data Augmentation	Pixel-wise adjustments	Mosaic
Regularization	Dropout	DropBlock
Normalization	Batch Normalization (BN)	Cross mini-Batch Normalization (CmBN)
Attention Module	None	Spatial Attention Module (SAM)
Loss function trick	None	Class label smoothing, Grid Sensitivity



YOLOv3 Architecture

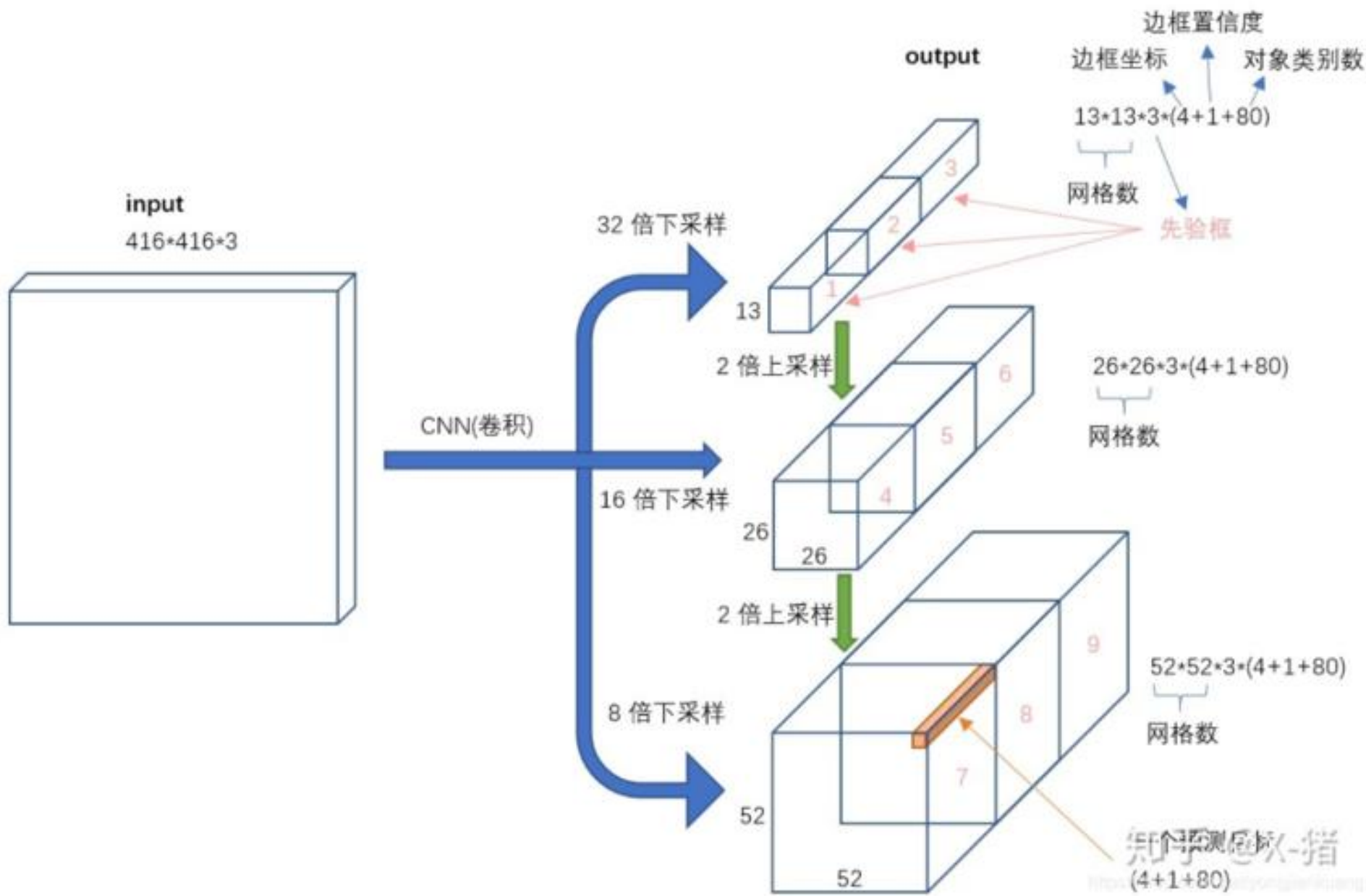


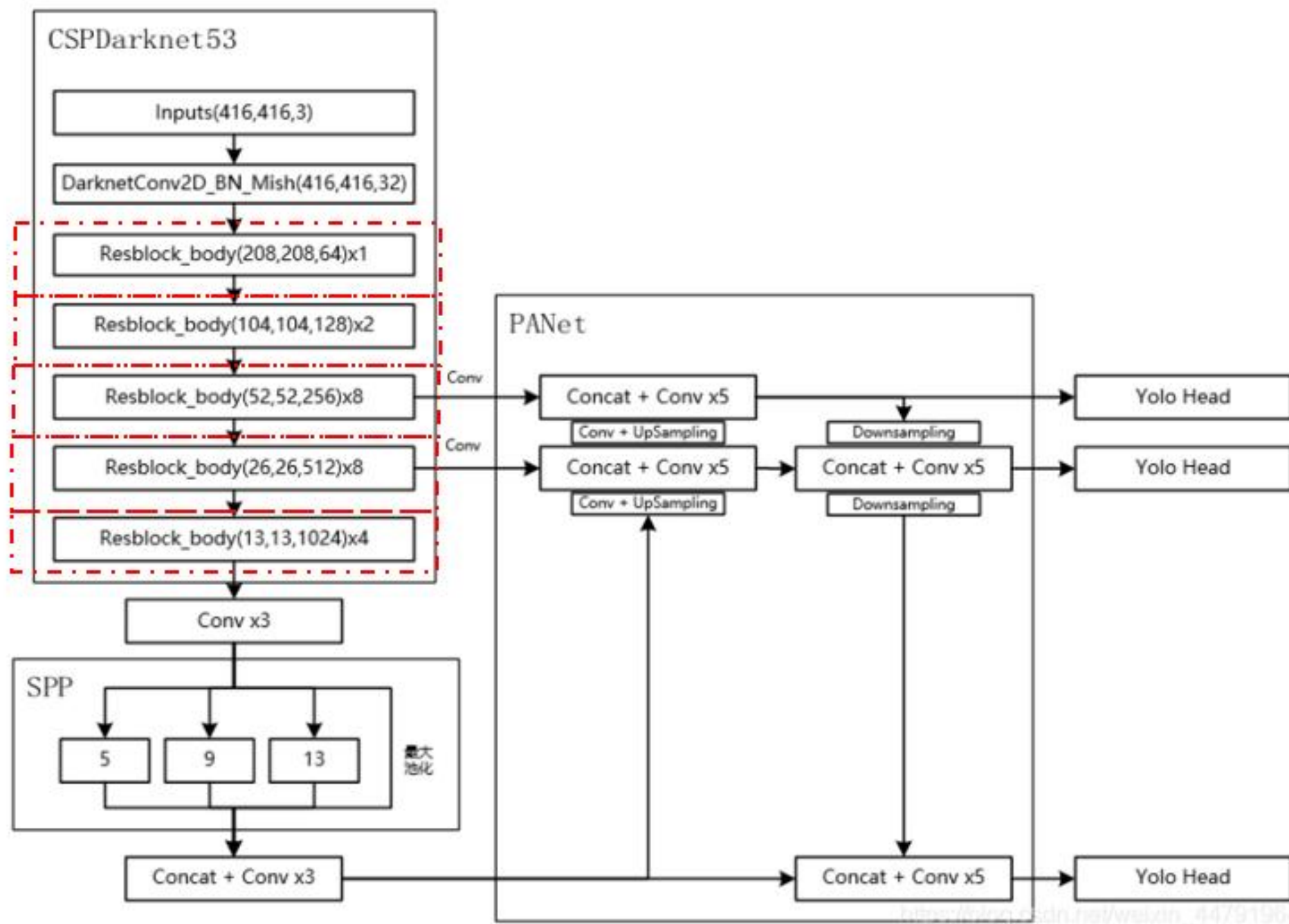
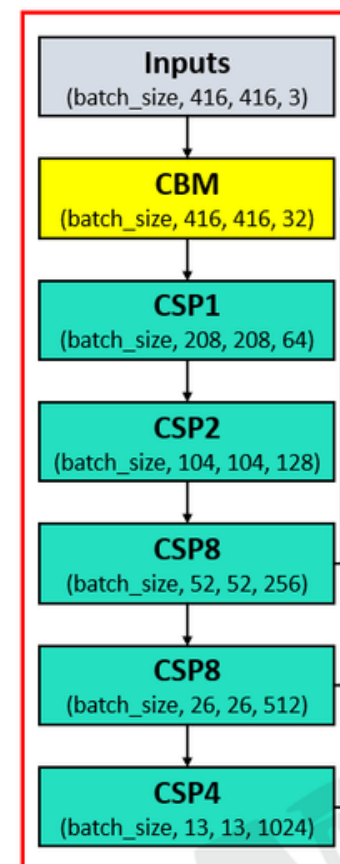
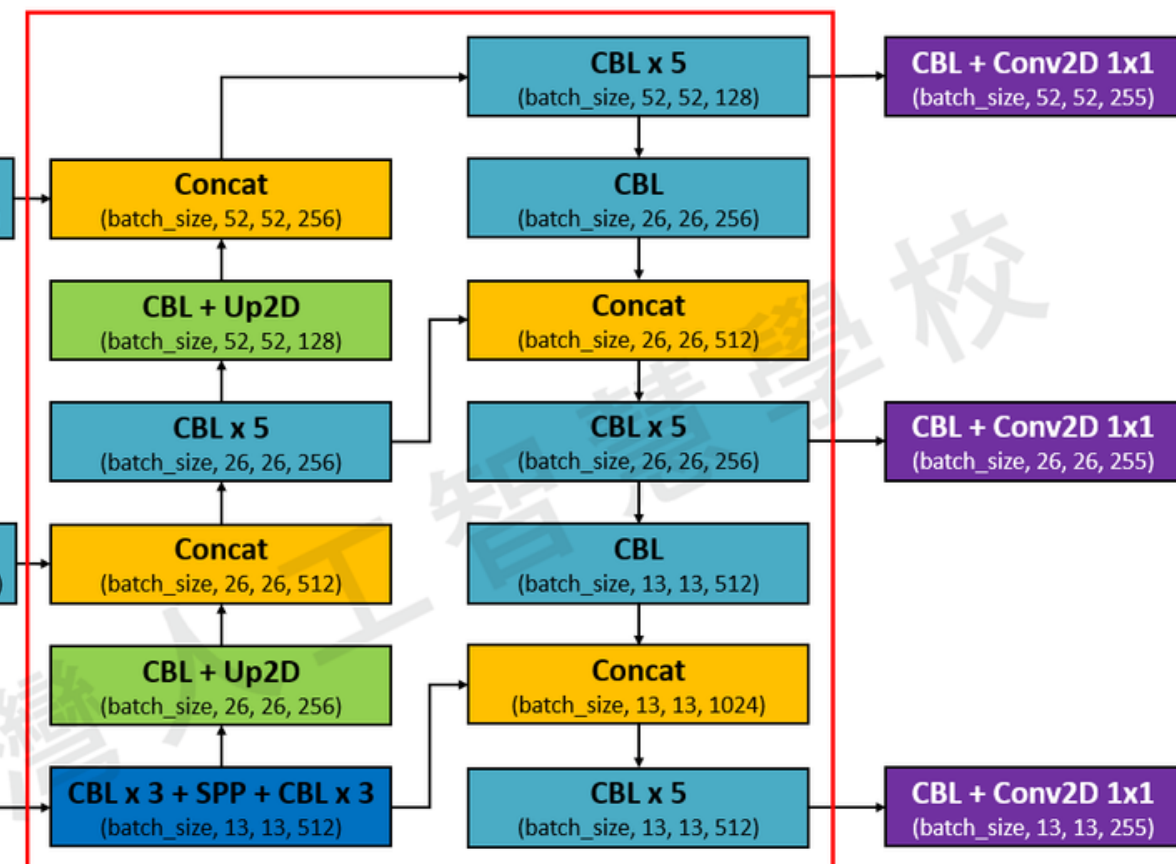
YOLOv3



YOLOv3 Head

特征图	13*13			26*26			52*52		
感受野	大			中			小		
先验框	(116x90)	(156x198)	(373x326)	(30x61)	(62x45)	(59x119)	(10x13)	(16x30)	(33x23)



**CSPDarknet53****PANet**

CBM = Conv BN Mish

CBL = Conv BN Leaky relu

Res unit = CBM CBM → add

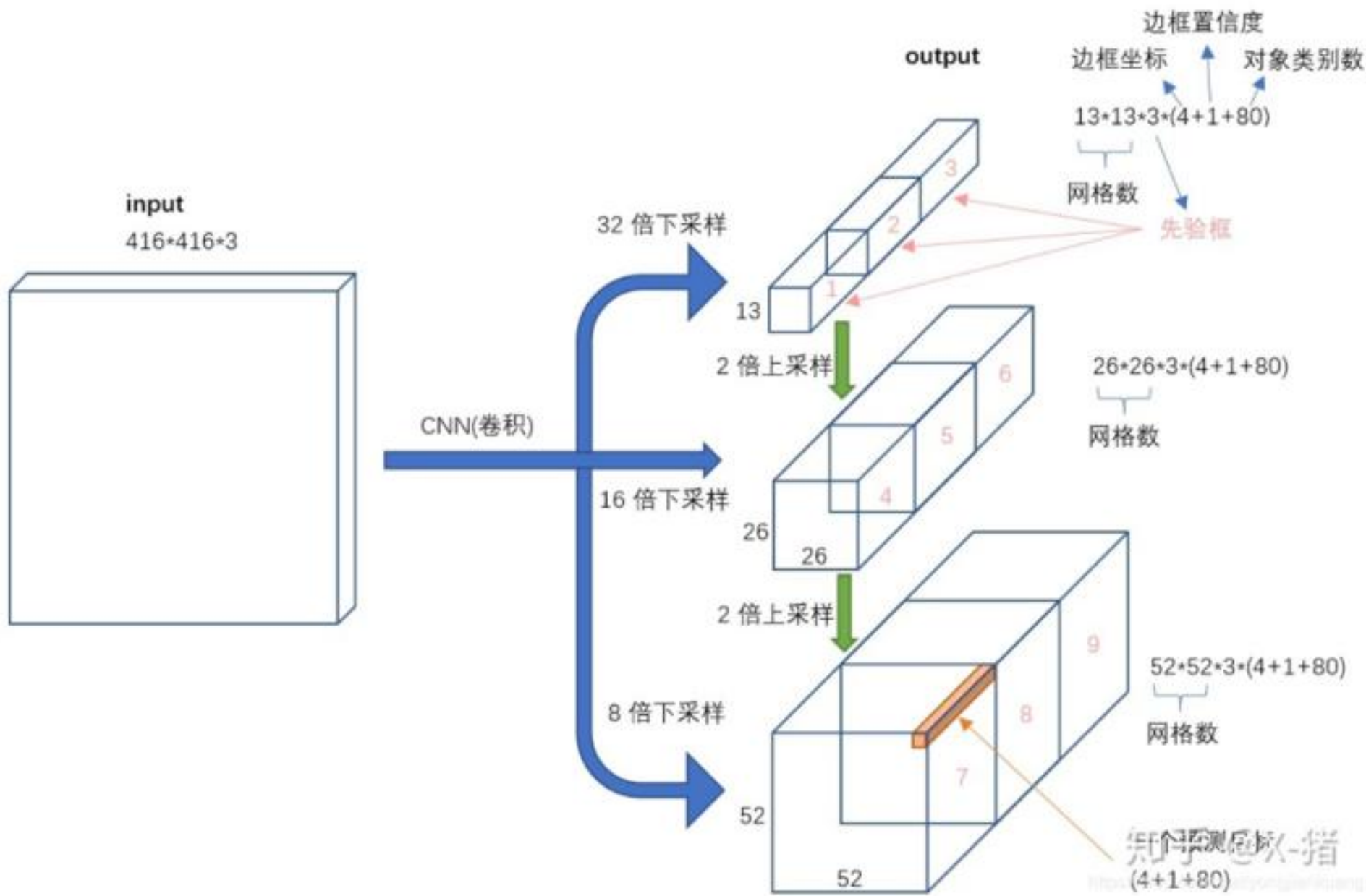
CSPX = CBM → CBM → Res unit (x 個) → Concat → CBM

YOLOv4



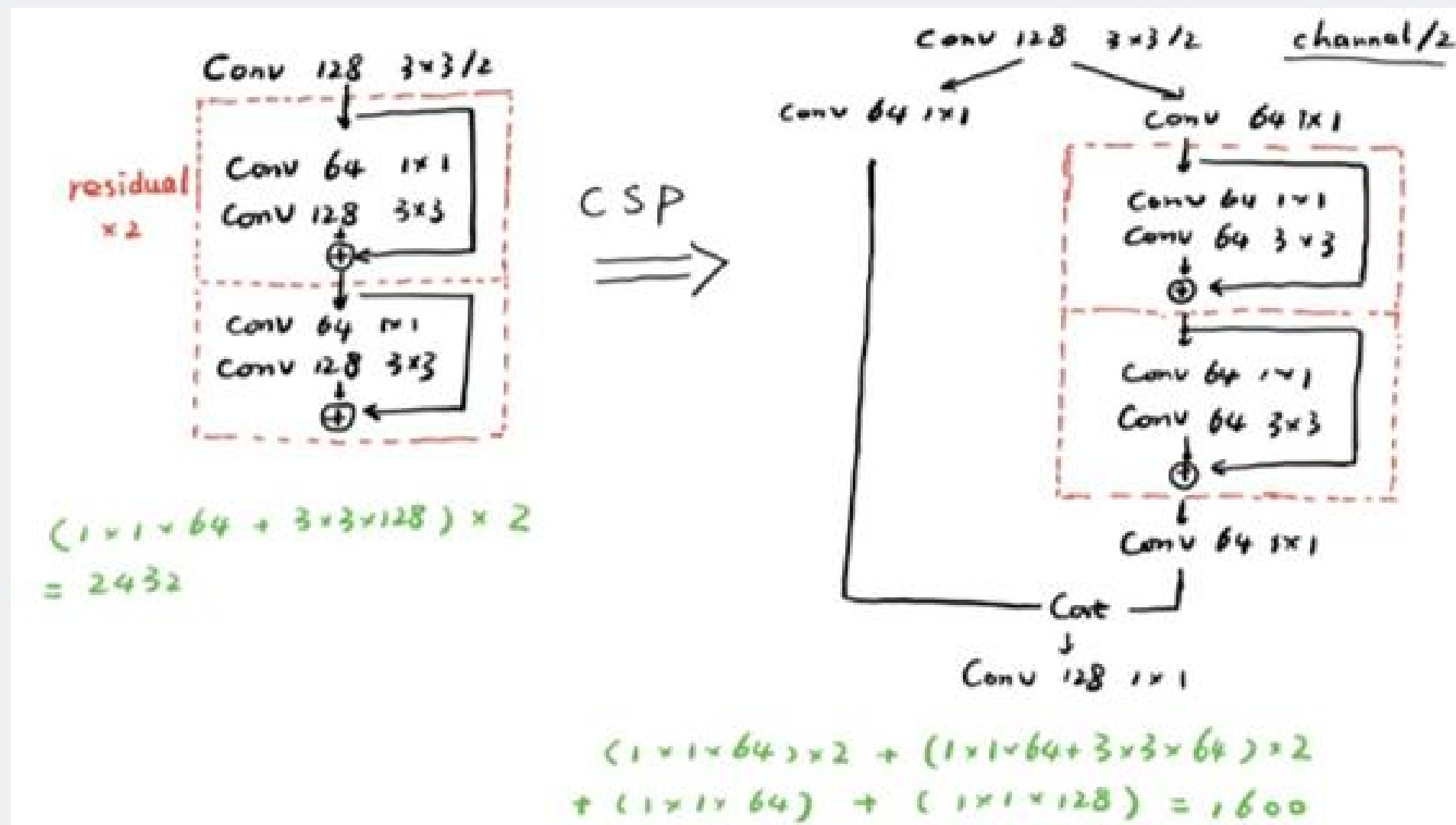
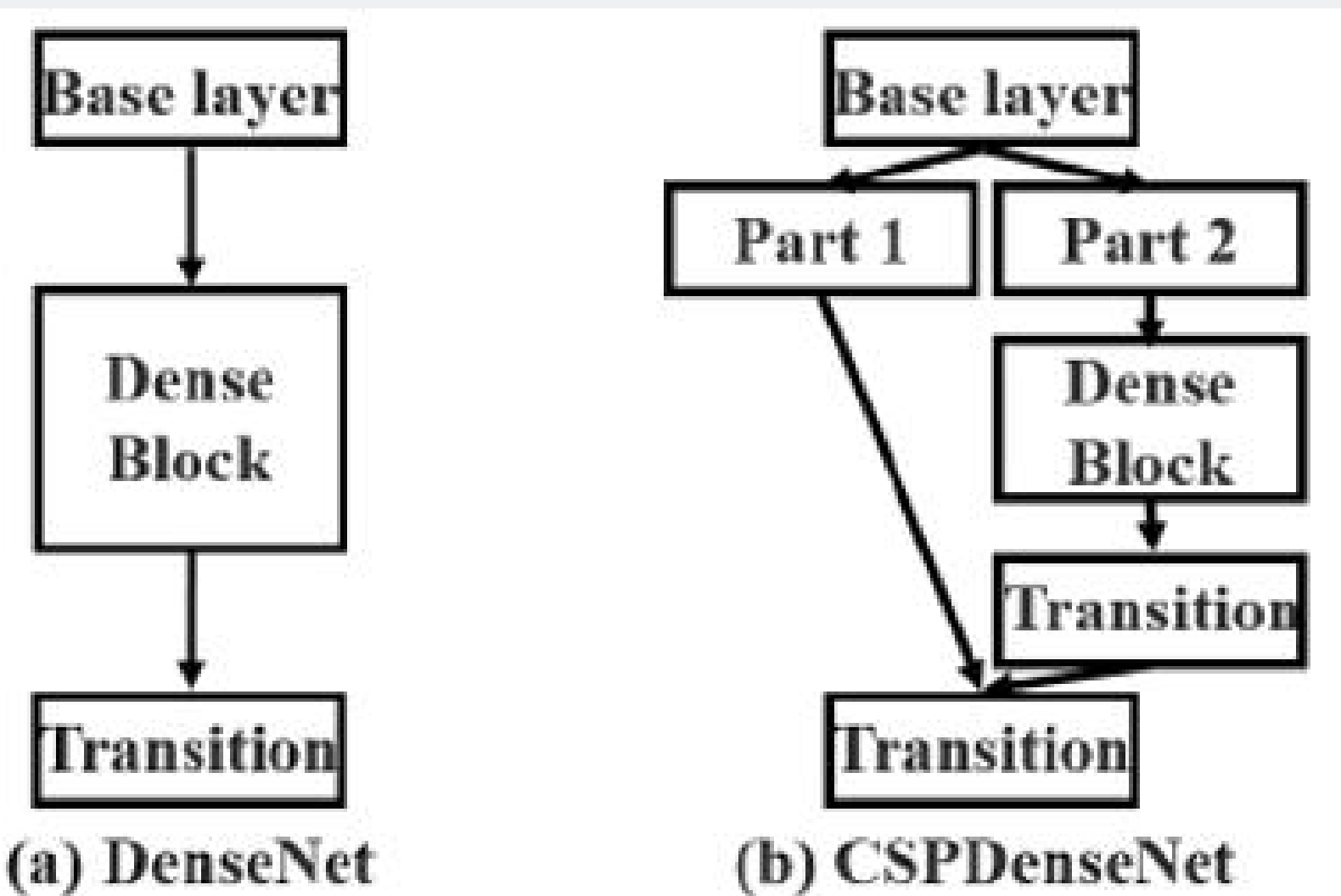
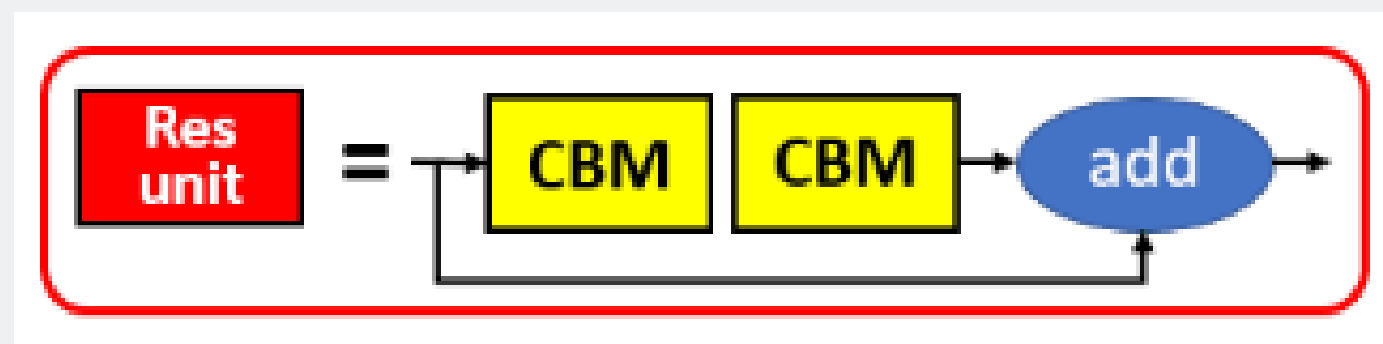
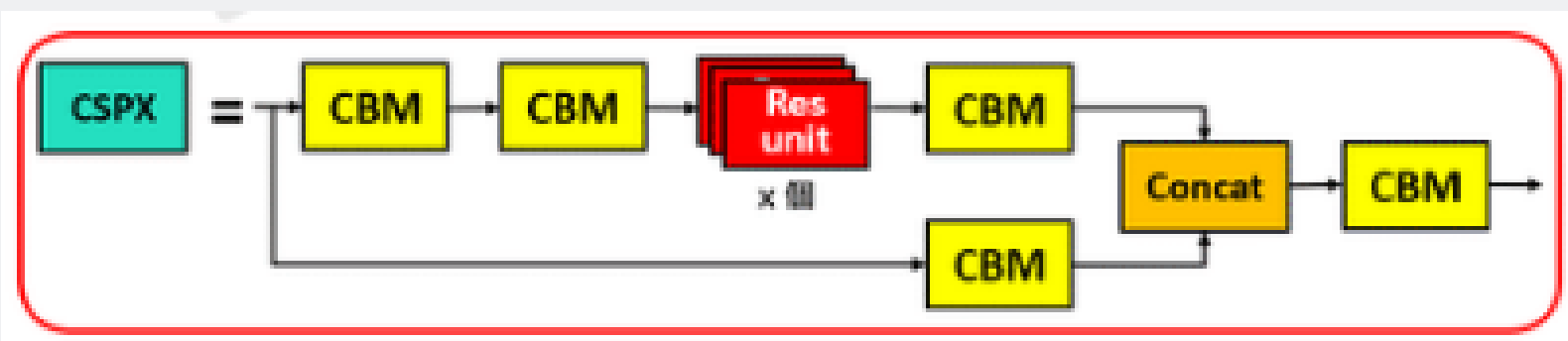
YOLOv4 Head same as YOLOv3

特征图	13*13			26*26			52*52		
感受野	大			中			小		
先验框	(116x90)	(156x198)	(373x326)	(30x61)	(62x45)	(59x119)	(10x13)	(16x30)	(33x23)



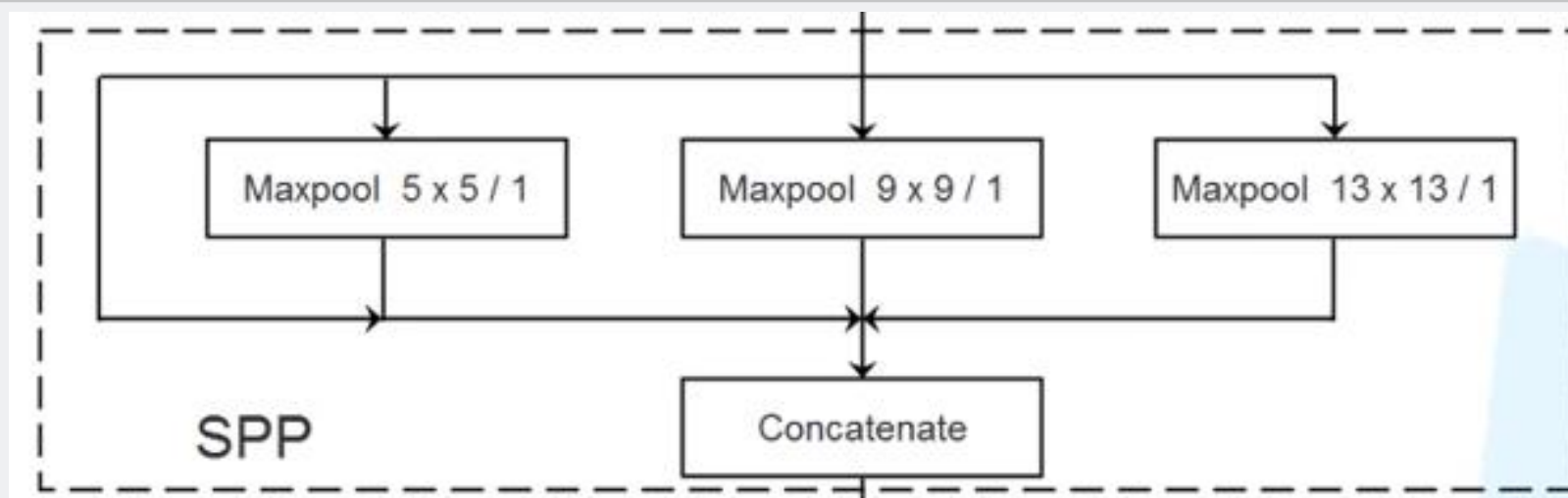


CSPNet

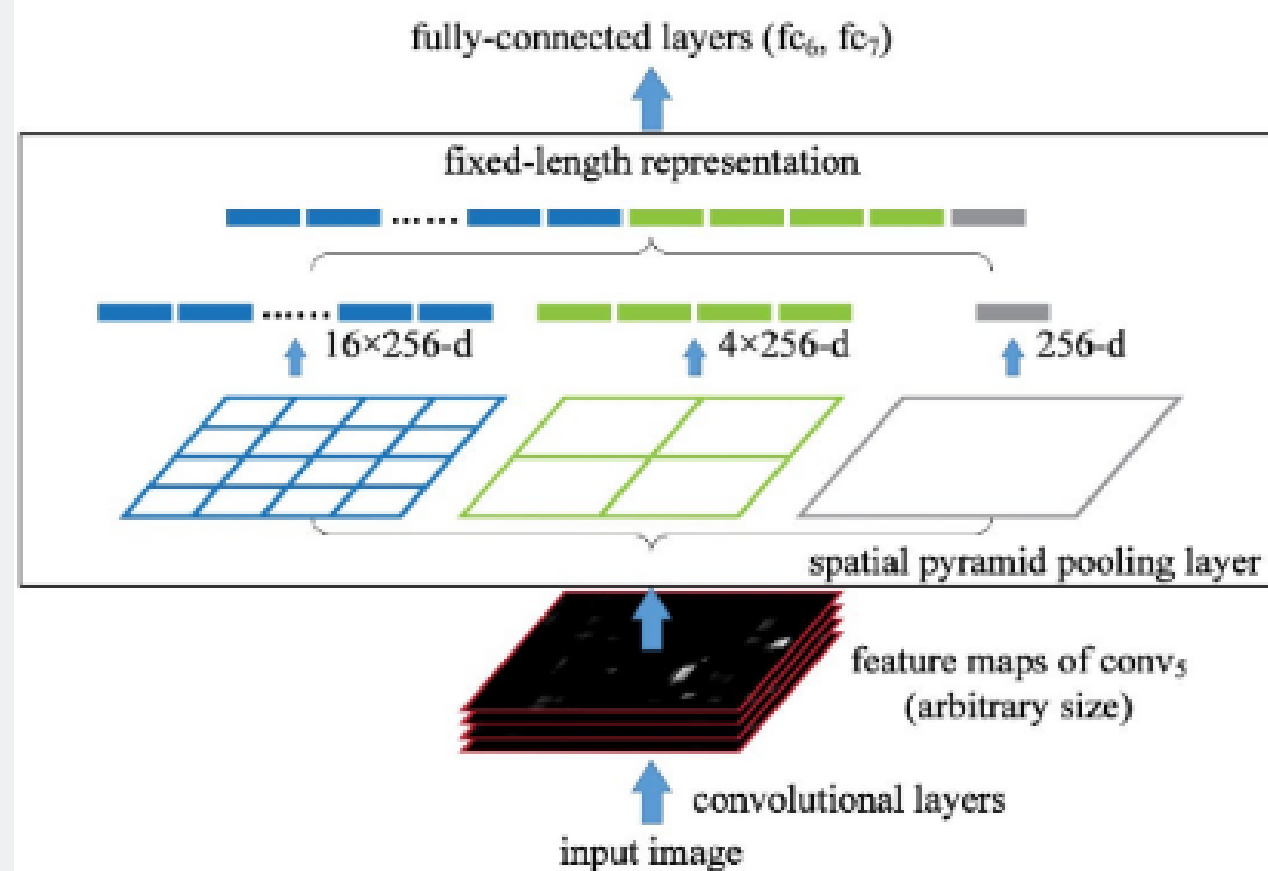




SPP Block



Original SPP



Modified SPP

