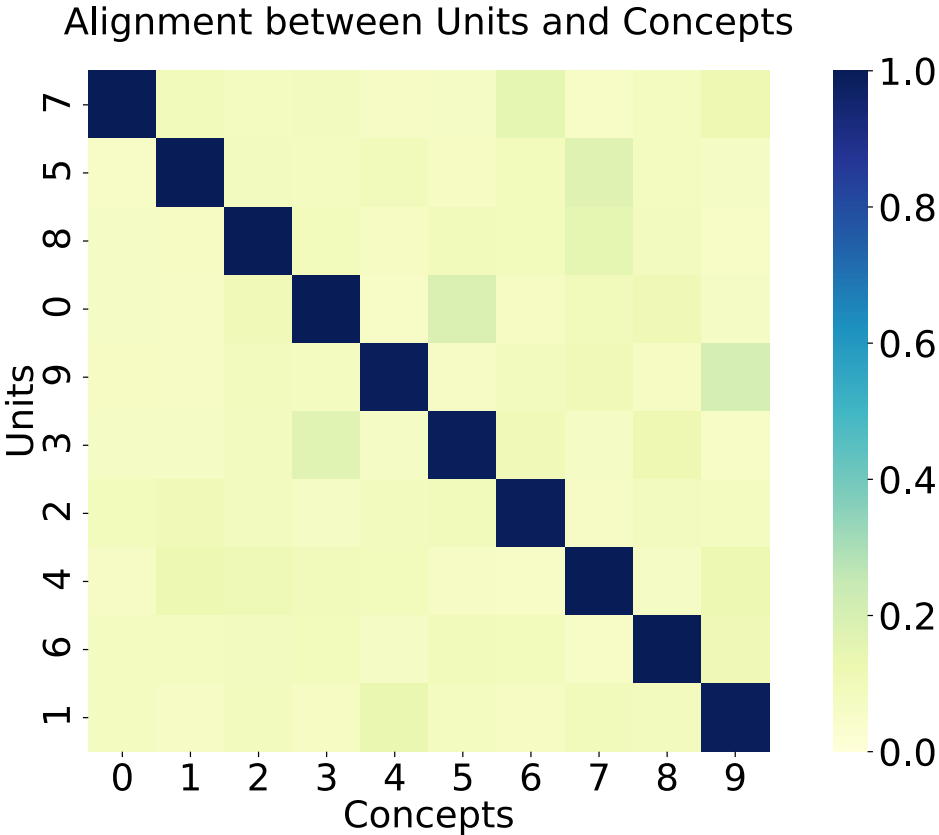
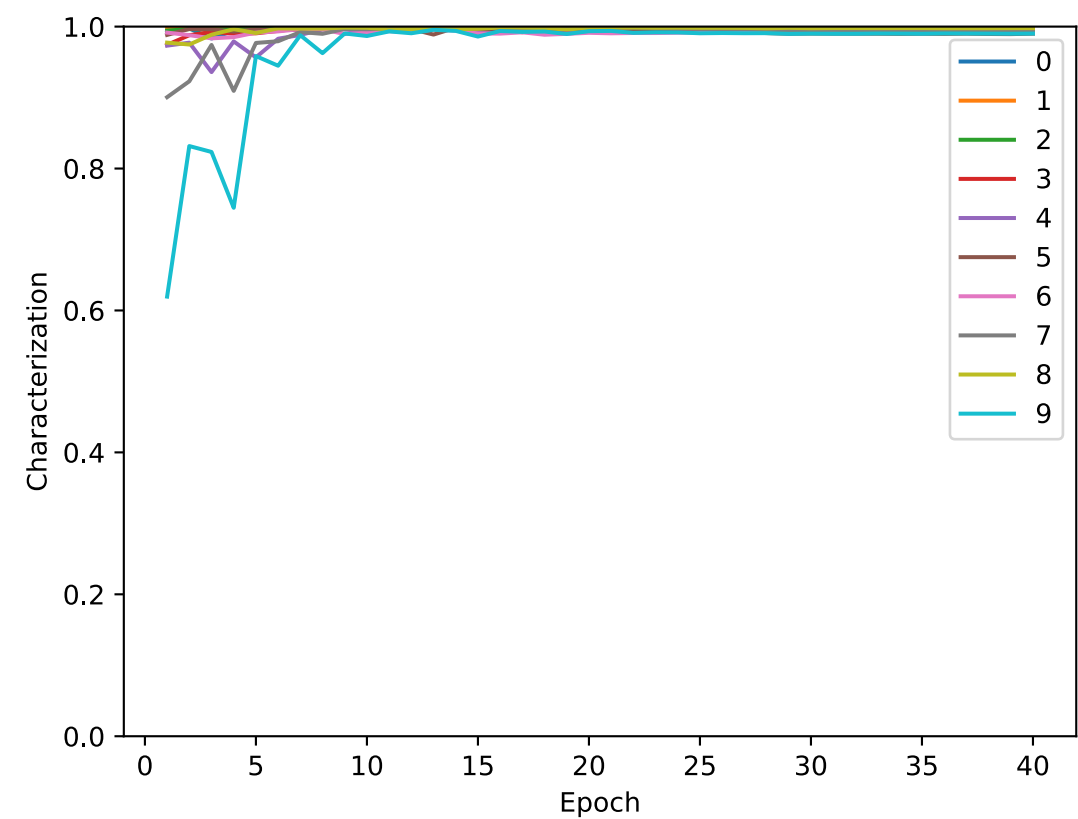
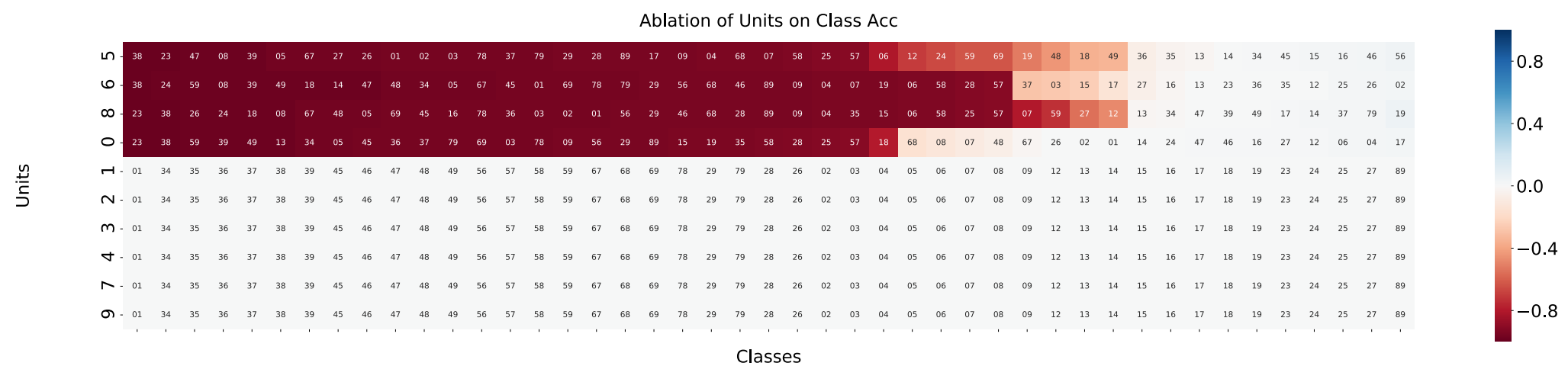
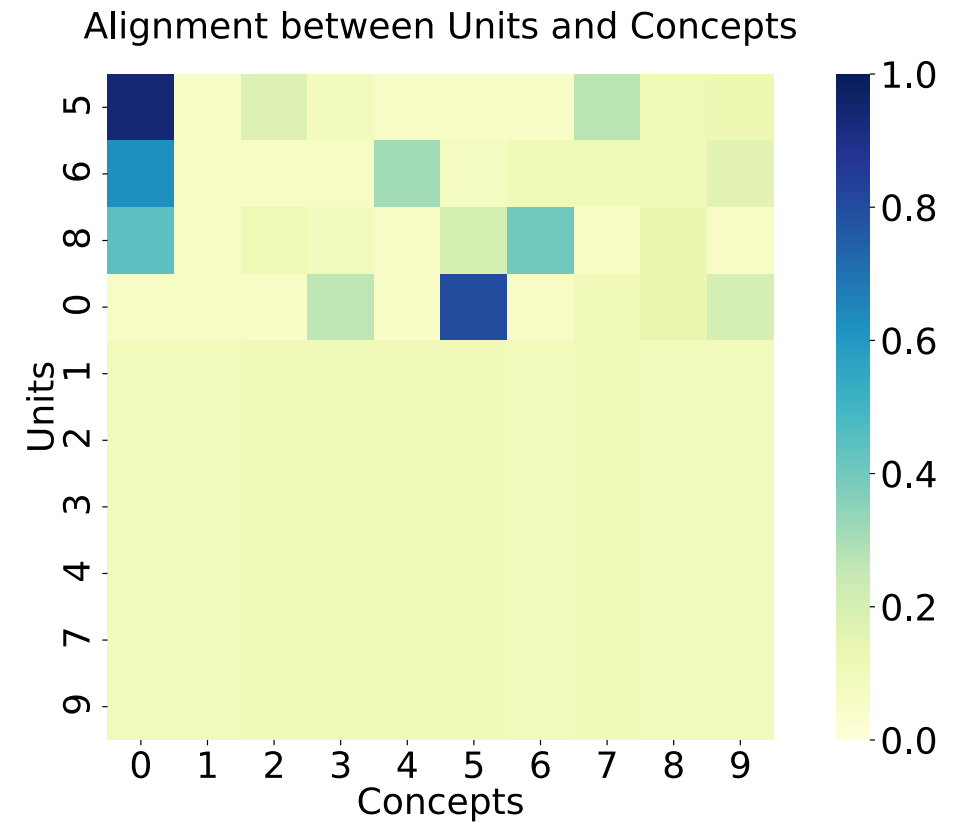
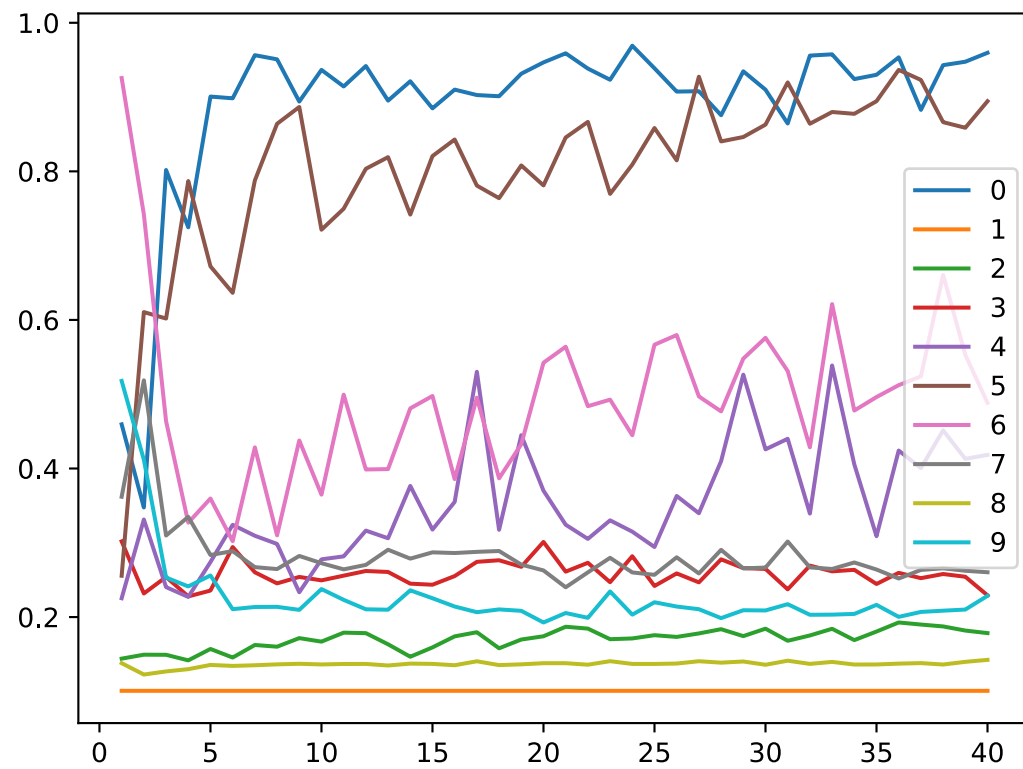


Concepts Alignment in the Training Process

Baseline (AlexNet, SGD)



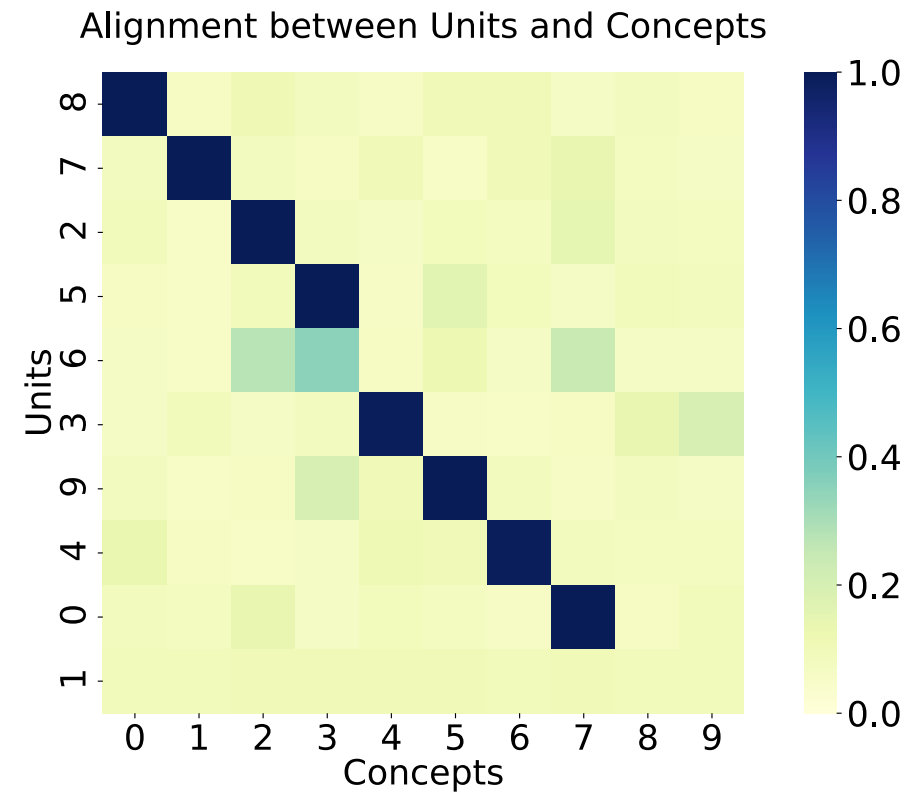
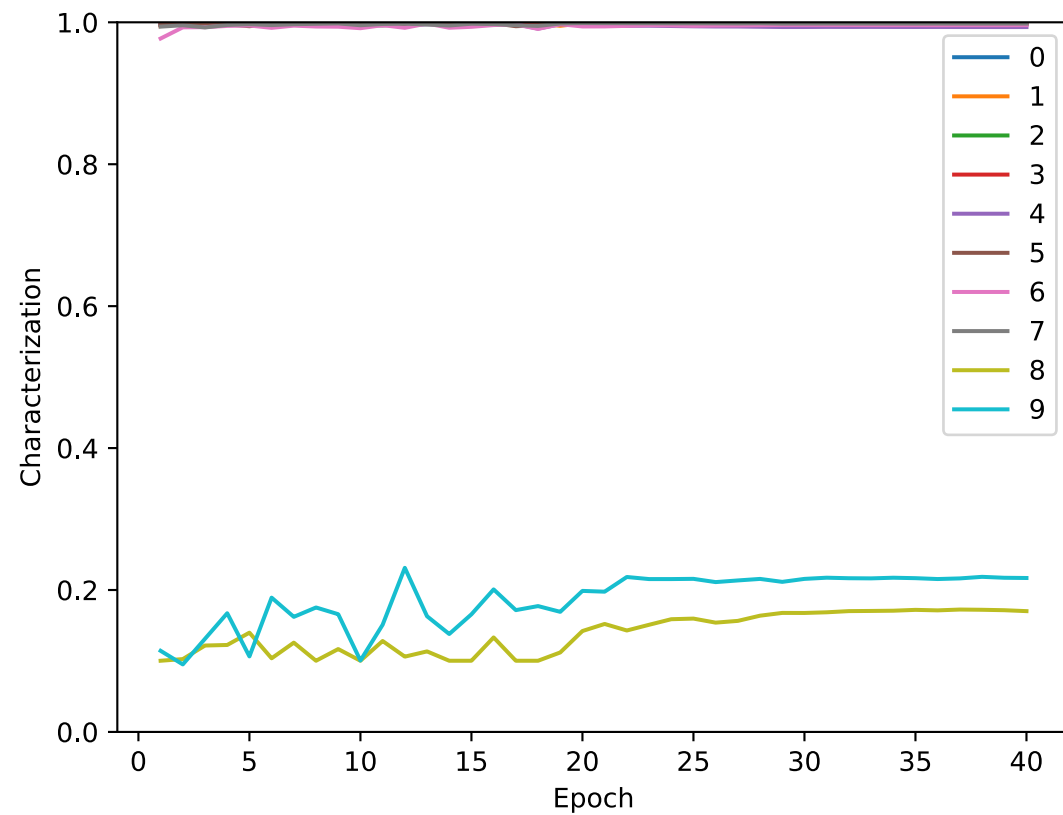
Adam



Still High accuracy, poor alignment.

Redundancy

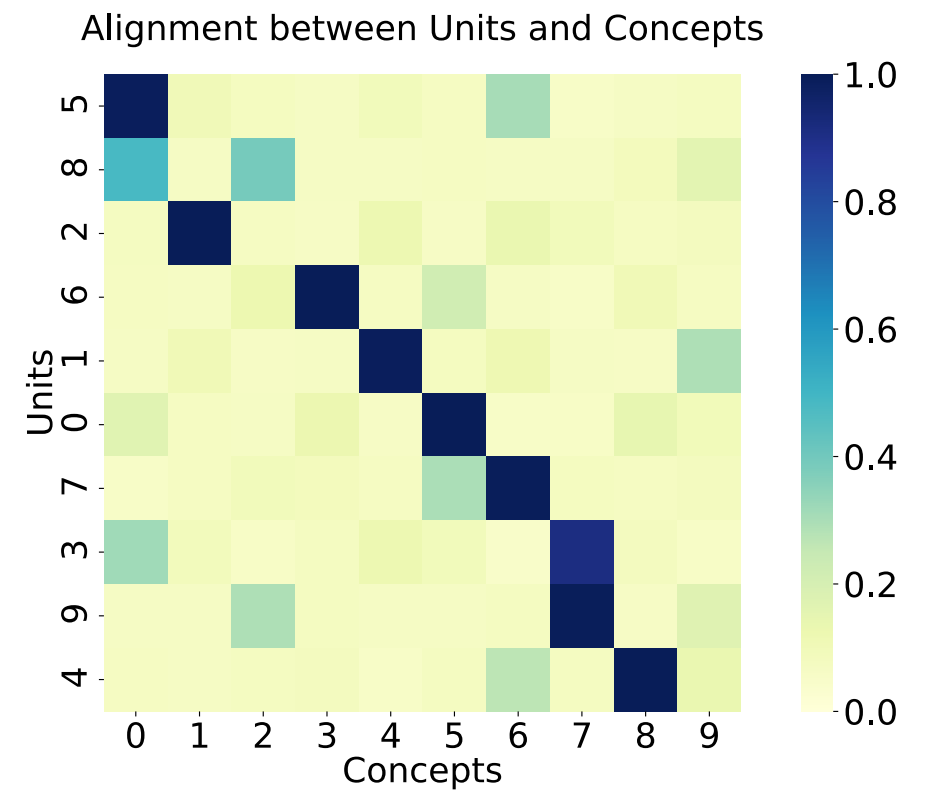
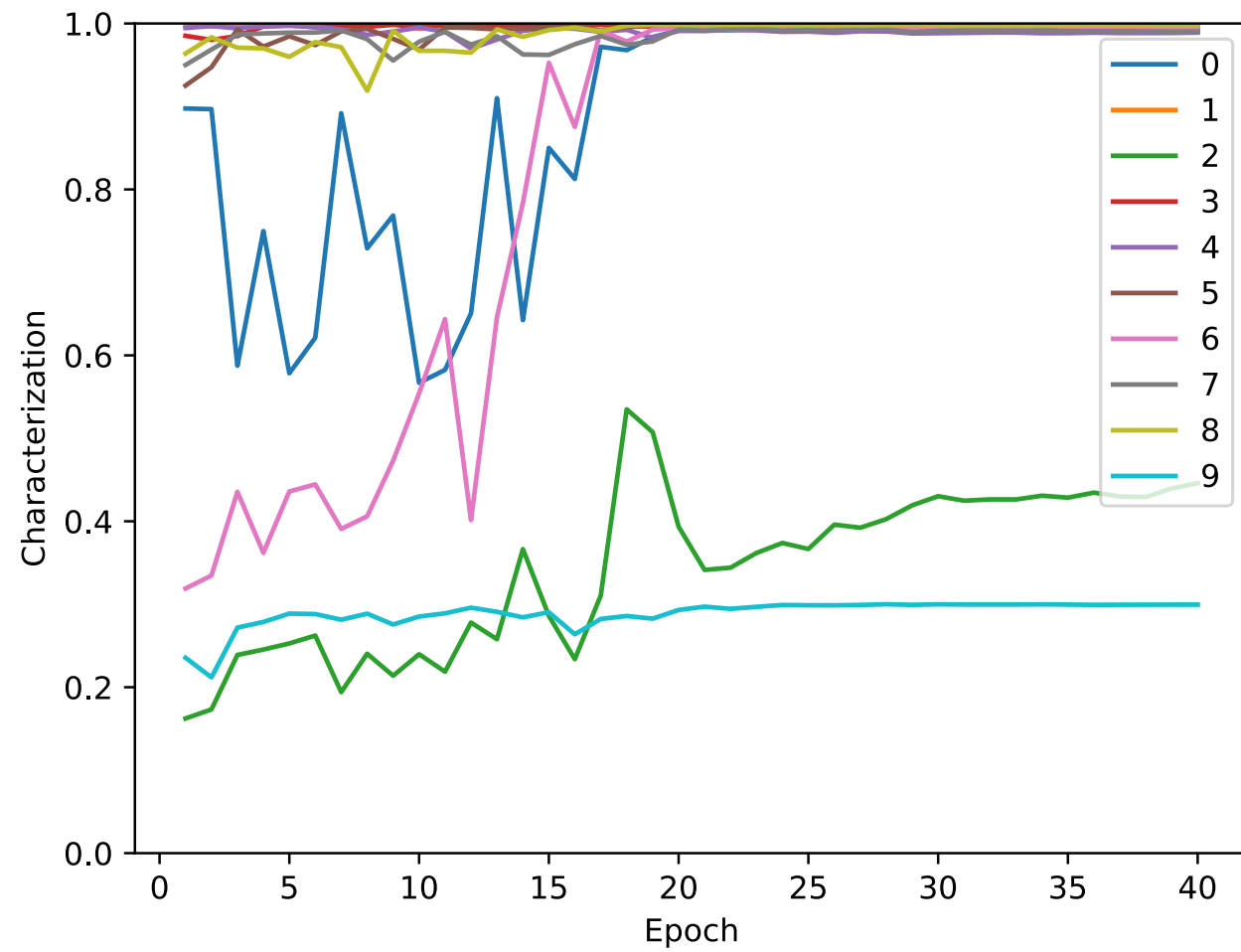
Digit 8&9 are randomly added to combinations of digit 0-7 (frac=0.5)



Although 8 and 9 appear frequently, they are not well characterized since they are 'useless'.

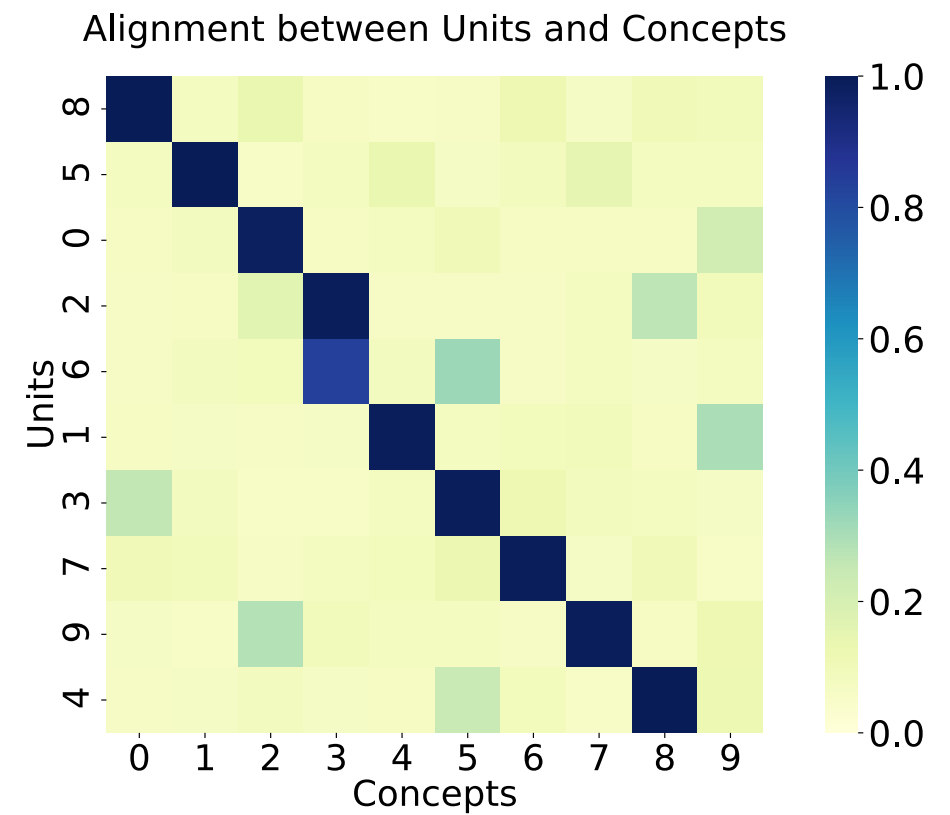
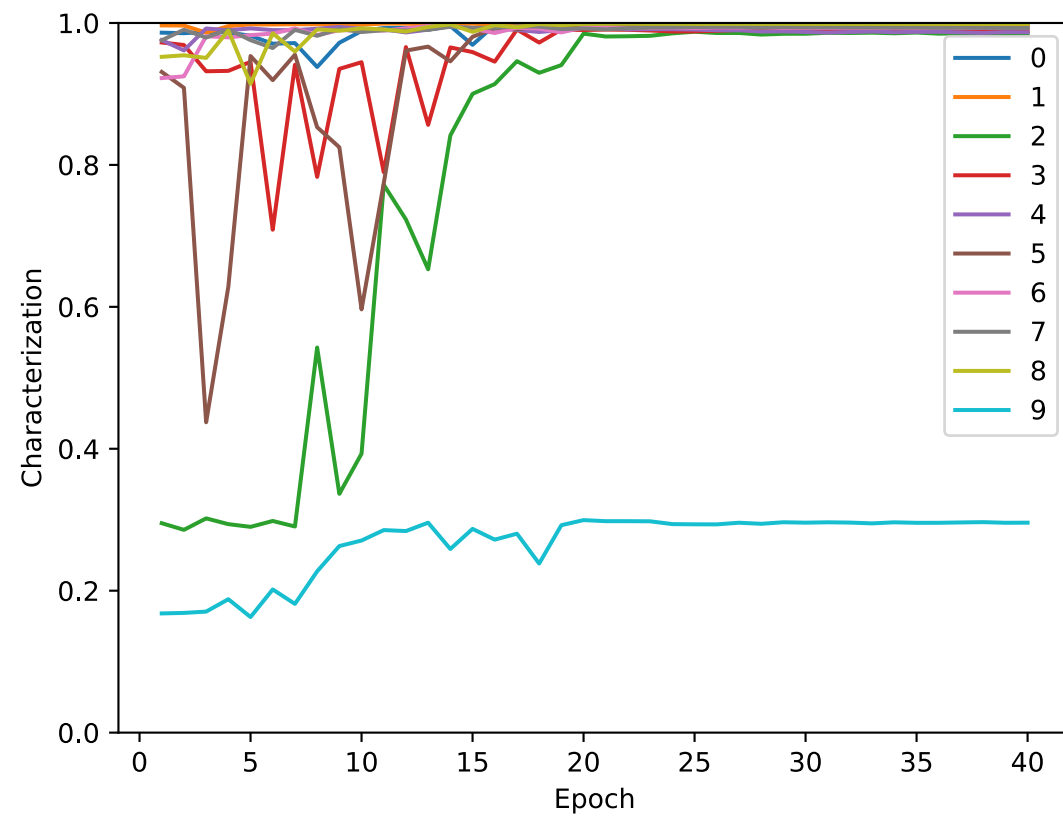
Study on characterization (1)

Digit 1-8 form 36 categories. 9 always appear with 2.



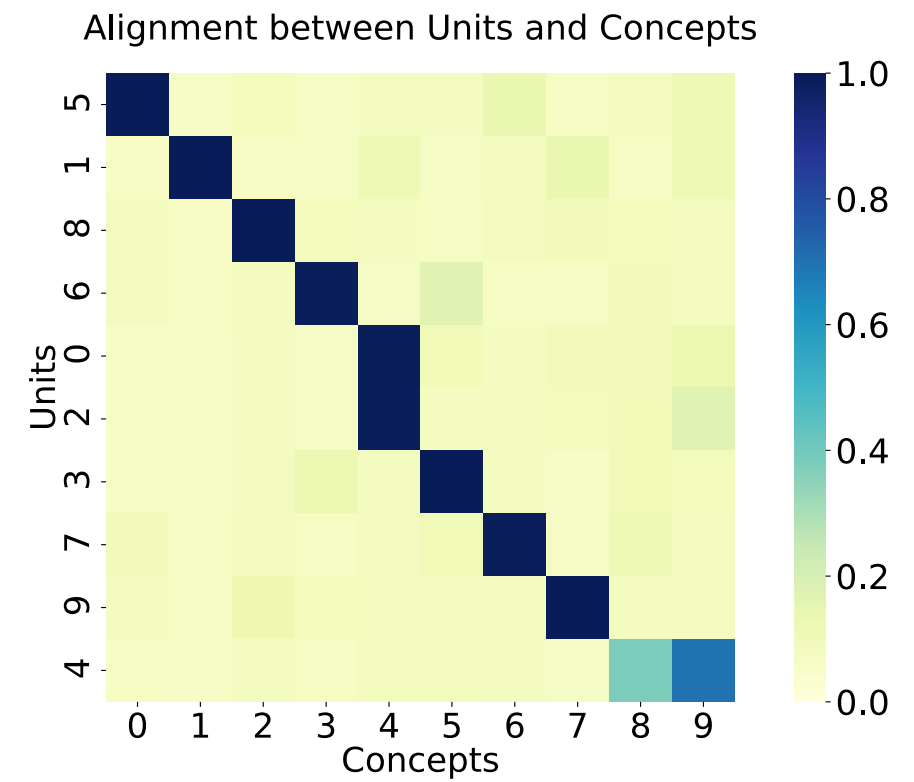
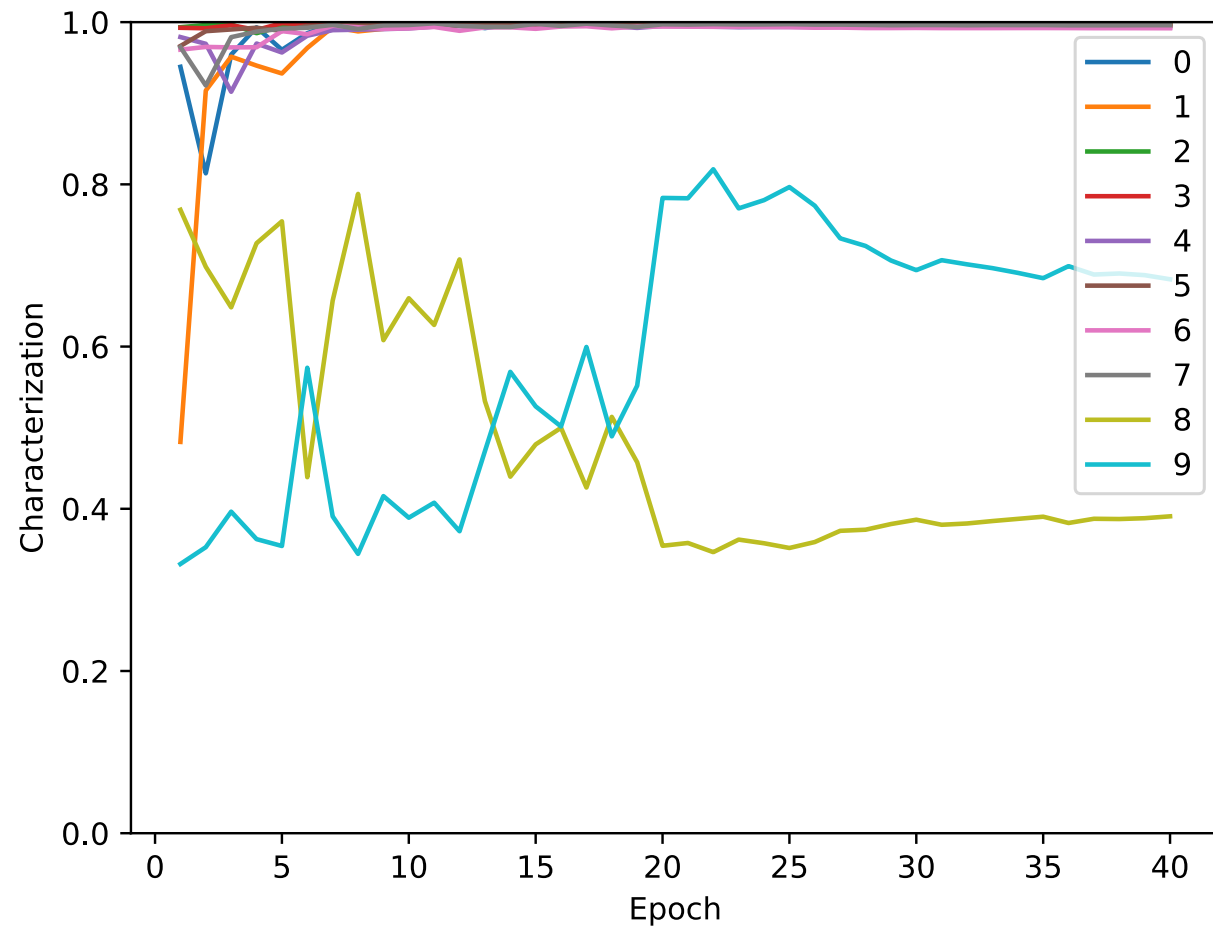
Study on characterization (1)

Digit 1-8 form 36 categories. '9' appear with 99% of '2'.



Study on characterization (2)

Digit 1-8 form 36 categories. Replace 20% of '8' by '9'



Study on characterization (2)

Digit 1-8 form 36 categories. Replace 99% of '5' by '9'

