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Lab 3

Graphs are at the bottom

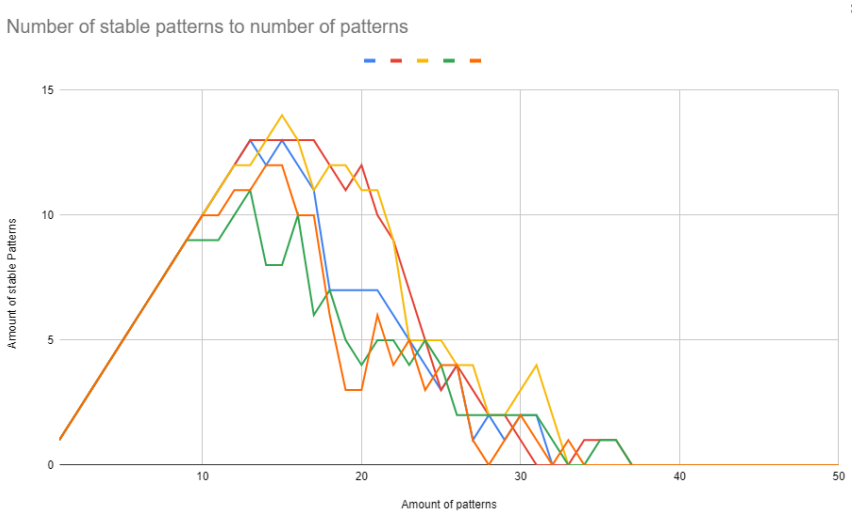
Questions for discussion:

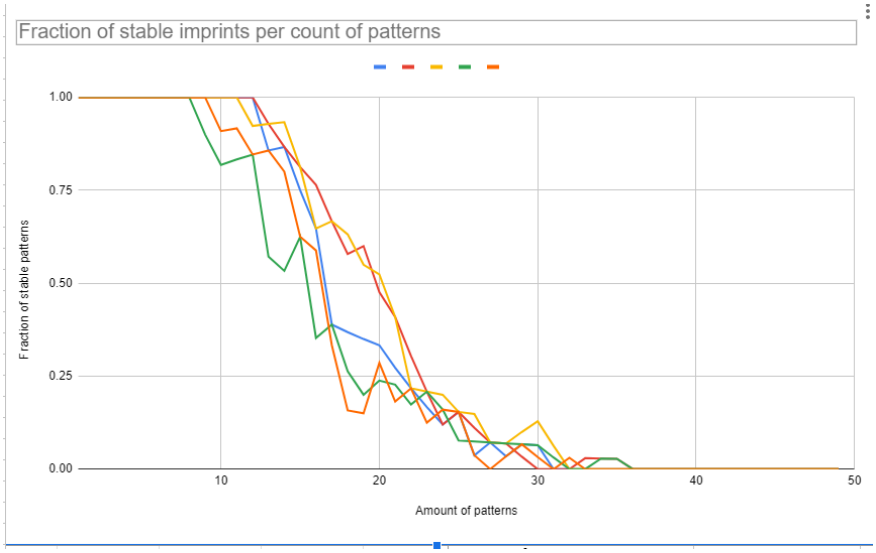
Q:How much variation did you see in capacity across the different experiments? Were there significant differences across the experiments?

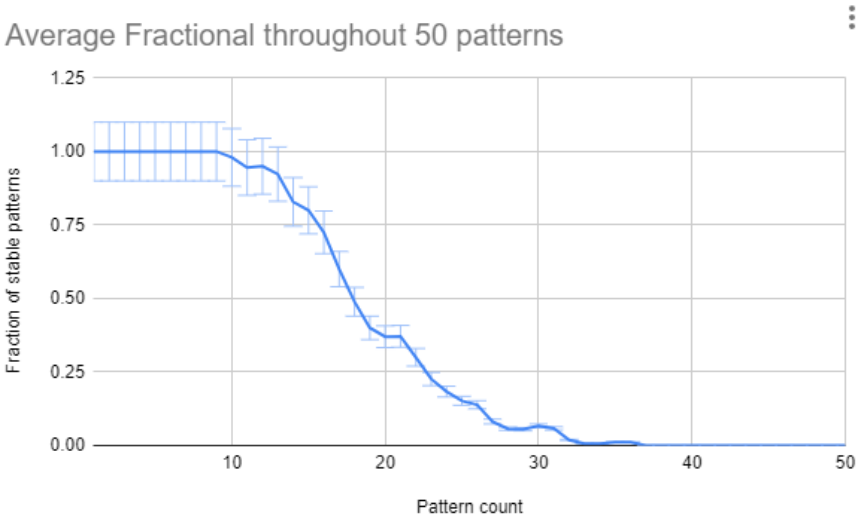
A: Yes, it did seem like there was a lot of variation between them. Some last 50% longer before any stability issues would occur. Certain ones never reached as many stable patterns as the others did, such as in the “Number of stable patterns to number of patterns” graph, you can see green only ever reached 10, while yellow reached 14, 40% more than green.

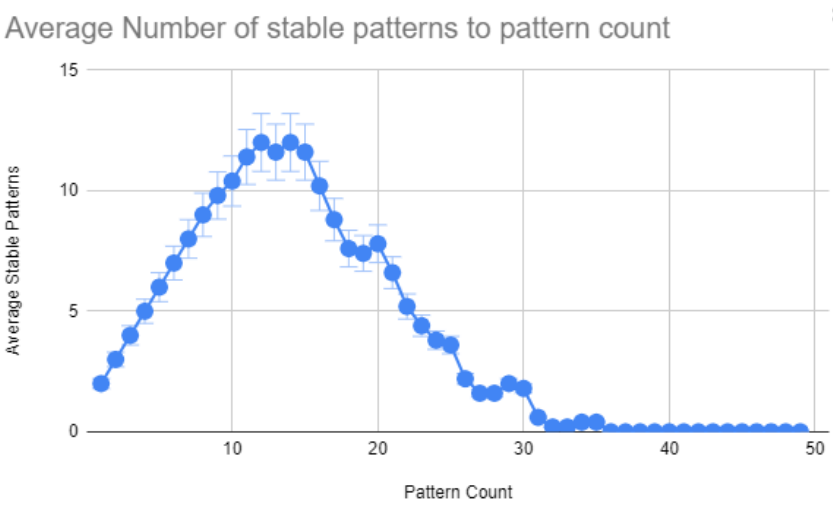
Q: Does it appear that there's a maximum capacity of the network? When does the maximum capacity occur?

A: There is for sure a point where a maximum capacity is reached within any given network. Too much capacity causes the network to get unstable and spill into a downward stability for all its neurons. The spike generally appears to occur between a pattern count of 12 to 15. 12 is where green maxed out, while 15 is when yellow and red started to lose stability. Some do appear to take a little longer than others.


Number of stable patterns to number of patterns
15
10
5
0
Amount of stable Patterns
10
20
30
40
50
Amount of patterns


Fraction of stable imprints per count of patterns
1.00
0.75
0.50
0.25
0.00
Fraction of stable patterns
10
20
30
40
50
Amount of patterns


Average Fractional throughout 50 patterns
1.25
1.00
0.75
0.50
0.25
0.00
Fraction of stable patterns
10
20
30
40
50
Pattern count


Average Number of stable patterns to pattern count
15
10
5
0
Average Stable Patterns
10
20
30
40
50
Pattern Count