

Dartnet Project Assignment Fall 2002

Individual Assignment.

Name:

Follow the instructions on downloading Dartnet from the Dartnet instruction sheet.

In this project you will investigate catastrophic forgetting, which is important because it explains why we need separate learning systems in the hippocampus and the neocortex.

Show the graph window and make it larger.

Follow the instructions through step 6.

Print out the graph showing the learning. What does the y axis of this graph represent?

Test the network with the grandmother weights:

1 0 0 1 0 0 1

What numbers does it report for the three output nodes? Write them below:

Test the woodcutter weights:

1 1 0 1 1 0 1

What numbers does it report for the three output nodes? Write them below:

Select weight shading from the Display menu. Print out your network and attach it to this sheet to hand in. Can you tell how the network works by looking at the pattern of weights in the links?

Catastrophic forgetting:

Now follow the instructions for step 7. Make sure you reset the session!

When you trained it on the "Little Red Riding.patsnowood" pattern set, does it know about woodcutters? Write the numbers when the woodcutter pattern is used to test the network:

1 1 0 1 1 0 1

What numbers does it report for the three output nodes? Write them below:

Does it know about grandmothers? Try her numbers

1 0 0 1 0 0 1

What numbers does it report for the three output nodes? Write them below:

After you load the woodcutter pattern set ("Little Red Riding.patswood") and train the network (don't reset it first), does it know about woodcutters? Test it with the woodcutters pattern set:

1 1 0 1 1 0 1

What numbers does it report for the three output nodes? Write them below:

Now test it for grandma again with these numbers:

1 0 0 1 0 0 1

What numbers does it report for the three output nodes? Write them below:

Does it know about grandma? If not, why has it forgotten about grandmother?

Neural networks learn very quickly, much like the hippocampus. This means that they can change very quickly. Would this be a good system to use to store long term networks? Why or why not?