

Architectures of Intelligence

Assignment 5

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Part 1

Figure 1 shows the model running.

Figure 2 shows the tuning (and response) curves of neuron ensemble “a”.

Figure 3 shows the model with a set stimulus of 0.

Ensemble a has a value of 0, as the signal is not modified between the stimulus and it.

Ensemble b has a value of -0.5. The signal is calculated as $0 * 0 - 0.5 = -0.5$ and remains constant over time*.

Ensemble c has a constant value of -1.1. The signal from b of -0.5 is transformed by 0.5 to -0.25. Due to the ensemble ‘remembering’ the value (resulting in -0.1 due to the synapse being set to 0.1), it stacks over time only to stop at $-1 - 0.1 = -1.1$.

*Note that “constant over time” is an approximation, as there is a small amount of noise in the signal.

