

# HFNLP biological implementation development specification

## - 07 June 2022

### Concept neuron: Q

Instantiations of Q are encoded via detection of contextual temporal/sequential spiked input:

Detected sequences (via combined subsequence detection):

Sequence #1: ABCDE[Q]

Sequence #2: FLMDH[Q]

Detected subsequences;

Subsequences #1:  $AB + AC + CD + DE = \text{AP threshold}$

Subsequences #2:  $FL + MDH = \text{AP threshold}$

- Detection of combined subsequences (#1 or #2) are sufficient to reach neuron Q action potential firing threshold.
- contributing synapses correlated with (immediately preceding) AP are strengthened (Hebbian)
- synapses uncorrelated with (immediately succeeding) AP are weakened (depression/atrophy)

List of concept neurons in network:

A B C D E F G H I J K L M N O P Q R S T

