# General Form

Assume there are observation at step . Denote the number of spikes at step in neuron be and all observations at step as .

Denote , and

Then the likelihood at step is:

, where

And the log-likelihood at step is:

As previous:

Where and

The moments of and can be evaluated by truncated summation, according to p.m.f.

# Linear Regression

Let

Then , , and

For the fisher scoring version: