For a fireOnce neuron (shown below), if a second input pulse comes within the firing delay caused by a first input pulse, it has no effect. However, the model can be modified in the following ways (a-d). ***Write the deltext(…) and out() functions for the fireOnce neuron and then write the deltext(…) and out() functions for each of the modifications. In all cases, write deltcon() to ignore an input pulse coming in the end of the firing phase.***
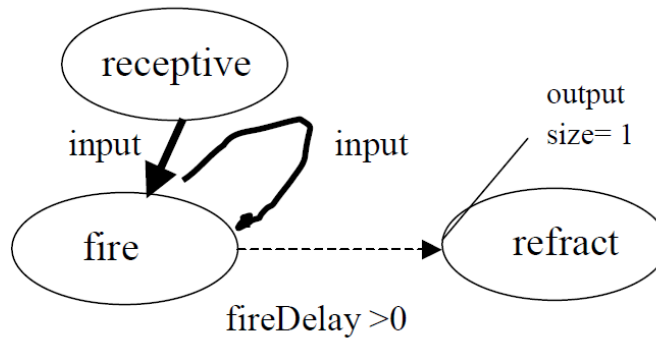
$$DEVS_{fireOce} = (X,\ Y,\ S,\ \delta_{ext},\ \delta_{int},\ \delta_{con},\ \lambda,\ ta)$$

Describe each of the symbols in the above model.

Then

a) The second input pulse cancels the scheduled output pulse and sends the model to refract.
$$\delta_{ext}(\text{"fire"}, \sigma, size, e, x) =$$

b) The second input pulse cancels the scheduled output pulse and reschedules this output after a time given by fireDelay.
$$\delta_{ext}(\text{"fire"}, \sigma, size, e, x) =$$

c) The second input pulse causes the scheduled output pulse to occur earlier than it would have – the new time left to fire is equal to half what it would have been had no pulse arrived.
$$\delta_{ext}(\text{"fire"}, \sigma, size, e, x) =$$

d) Same as b) and in addition, the size of the output pulse is increased by an amount that equals the ratio of the interval between the arrivals of the two pulses to the time that was left to fire. This gives the output pulse "credit" for the cancelled pulse in proportion to how late in the firing phase it was aborted (near zero credit for nearly co-incident pulses; almost full credit (= 1) for a input pulse that comes almost at the end of the firing phase.).

$$\delta_{ext}(\text{"fire"}, \sigma, size, e, x) =$$