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John Rinzel* ([rinzel@cns.nyu.edu](mailto:rinzeln@cns.nyu.edu)), 251 Mercer St, Courant Institute, NYU, New York, NY 10012. *ON-OFF Episodic Activity: Noisy Oscillator or Noise-Driven Attractor Dynamics.*

Alternation between different states is found at various levels in the nervous system from the single cell level (bursting) to perception (e.g., binocular rivalry). Switching can be very abrupt, suggesting an underlying bi- or multi-stability, and random, evidencing an influence of “noise”. Typically, in mechanistic models a slow negative feedback (“adaptation”) is postulated as a mechanism for terminating an “ON” state. If the feedback is adequately strong switching is automatic and the system operates as a noisy relaxation oscillation. Alternatively, if feedback is not so strong, the system is functionally bistable and noise is essential to trigger the switches. We will describe some dynamical features of such haphazard episodic activity. (Received September 13, 2010)