



Neuronal cells (neurons) mainly transmit signals by action potentials or spikes. Neuronal electrical activity is recorded from experimental animals by microelectrodes placed in specific brain areas. These electrochemical fast phenomena occur as all-or-none events and can be analyzed as boolean sequences. Following this approach, several computational analyses reported most variable neuronal behaviors expressed through a large variety of firing patterns [13]. These patterns have been modeled as symbolic strings with a number of different techniques [23, 55]. The results obtained with these methods come (i) from Ventrobasal Thalamic Nuclei (VB) and Somatosensory Cortex (SSI) in Chronic Pain Animals (CPAs), (ii) from Primary Visual (V1) and (SSI) in rat Cortices and, finally, (iii) from IL human Thalamus Nuclei in patients suffering from states of disordered consciousness like Persistent Vegetative State (PVS) and Minimum Conscious State (MCS).