

equal chance even for patterns with different numbers of elements forming this pattern (Gross 1989).

If an input is presented to the Py3-neurons (general feature detectors) of the lower subsystem, those SN-decisions (category representations or pattern recall) are fed back to Py3 like an expectation and disinhibit those Py3-nodes that are expected to be active if the decision about the input taken in SN is correct according to the already gained knowledge. So the memory traces are established via entrainment of reverberatory activity in disinhibitory (for weak SN-solutions with low activity levels) and nonlinear excitatory (for sharp solutions with high activity levels) feedback loops connecting the nodes in the SN-layer with the nodes in the input (Py3)-layer.

In this way the Py3 input layer is modulated both by sensory input and semantic recall from SN and by an adaptively increasing or decreasing selective pressure (SP) in a way that the input is dynamically processed and reshuffled according to the state of intramodular processing.

Switching off the not fitting input channels by SP-induced increase of the inhibitory level at the Py3-subsystem is a powerful characteristic of the system to cope with a too high input complexity. Furthermore, with hiding the input channels activity behind the created inhibitory level, all possibly earlier established relations of these input elements are automatically erased. Those input elements can be freely arranged to any other order relation.

Regarding pattern recognition and classification this system has special abilities for the discrimination of highly non-orthogonal patterns with high accuracy.

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