Alexei A. Koulakov · Dmitry A. Rinberg
 Dmitry N. Tsigankov

How to find decision makers in neural networks

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In the original publication some of the figures have been reproduced with errors. Corrected reproductions of these figures are shown below.

Fig. 2 **a** A simple ‘nematode’ network consists of a chain of units. All units in the chain are linear, except the last. The last unit, shown by the square, is non-linear and returns zero or one depending on the sign of the response of the preceding unit. **b** The average input–output relationship (psychometric function) for the ‘nematode’ chain, is given by the sigmoid function. The spread of the sigmoid is determined by the net noise in the chain

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A.A. Koulakov (✉) · D.N. Tsigankov
 Cold Spring Harbor Laboratory, NY 11724, Cold Spring Harbor, USA
 E-mail: akula@cshl.edu
 Tel.: +516-3678470
 Fax: +516-3678389

D.A. Rinberg
 Monell Chemical Senses Center, Philadelphia, PA 19104, USA

Fig. 5 The example with uniformly distributed noise. **a** Mutual information between response of a given unit and the decision. The dependence has a non-uniform increase, suggesting that mutual information is not a good measure of decision making. **b** If one applies a non-linear function (solid curve) to the mutual information in **a** one obtains a uniformly increasing correlator in **c**. This non-linear function, called $F(MI)$, is close to linear, shown by the dotted line. **c** the new correlator $F(MI)$ (it top panel) has a uniform derivative (bottom panel). Thus, the derivative of $F(MI)$ is a sensible measure of decision making in the case of uniform noise

Fig. 7 The mutual information approach can be extended to connectivities other than linear chains (**a**). Thus, decision makers in the case of trees (**b**) can also be found. Arbitrary networks can be specified by connection matrices, which are provided for illustration purposes. The non-zero entries in a connection matrix indicate a connection between two elements numbered on the left. An entry value describes the strength of the connection and does not have to be unitary or positive