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Erratum: Simultaneous silence organizes structured higher-order interactions in neural populations

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This Article contains typographical errors.

In the Results section under subheading 'Simultaneous silence and HOIs of hippocampal neurons'

"The parameters $\{\theta_i, \theta_j\}$ were adjusted to fit these statistics."

should read:

"The parameters $\{\theta_i, \theta_{ij}\}$ were adjusted to fit these statistics."

In the Results section under subheading 'Simultaneous silence is a ubiquitous feature of HOIs'

"By expanding the SS term into the standard HOI-coordinates, we obtain

$$\theta_0 \prod_i (1 - x_i) = \theta_0 - \theta_0 \sum_i x_i + \theta_0 \sum_{i<j} x_i x_j - \theta_0 \sum_{i<j<k} x_i x_j x_k + \theta_0 \sum_{i<j<k<l} x_i x_j x_k x_l."$$

should read:

"By expanding the SS term into the standard HOI-coordinates, we obtain

$$\theta_0 \prod_i (1 - x_i) = \theta_0 - \theta_0 \sum_i x_i + \theta_0 \sum_{i<j} x_i x_j - \theta_0 \sum_{i<j<k} x_i x_j x_k + \theta_0 \sum_{i<j<k<l} x_i x_j x_k x_l - \cdots."$$

In the Result section under subheading 'Alternating signs of HOIs predicted by SS', equation (2)

$$p_{\text{hHOI}}(x_1, \cdots, x_{10}) \sim \exp\left[\sum_i \theta_i x_i + \sum_{i_1<i_2} \theta i_1 i_2 x_{i_{x_1 i x_2}} + \sum_{k=3}^{10} \bar{\theta}_k \sum_{i_1<\cdots<i_k} x_{i_1} \cdots x_{i_k} \right],$$

should read:

$$p_{\text{hHOI}}(x_1, \cdots, x_{10}) \sim \exp\left[\sum_i \theta_i x_i + \sum_{i_1<i_2} \theta_{i_1 i_2} x_{i_1} x_{i_2} + \sum_{k=3}^{10} \bar{\theta}_k \sum_{i_1<\cdots<i_k} x_{i_1} \cdots x_{i_k} \right],$$

In the Methods section under subheading 'A dichotomized gaussian (DG) model',

"The binary output of the i-th neuron ($i = 1, \cdots, N$) is given by $X_i = 1$ if $u_i > 0$ or $X_i = 0$ if $u_i \leq 0$, where $u = (u_1, u_2, \cdots, u_N)'$ is drawn from a multivariate Gaussian distribution with mean $\gamma = (\gamma_1, \gamma_2, \cdots, \gamma_N)'$ and a covariance matrix Λ whose diagonal is 1 as $u\widetilde{N}(\gamma, \Lambda)$."

should read:

"The binary output of the i-th neuron ($i = 1, \cdots, N$) is given by $X_i = 1$ if $u_i > 0$ or $X_i = 0$ if $u_i \leq 0$, where $u = (u_1, u_2, \cdots, u_N)'$ is drawn from a multivariate Gaussian distribution with mean $\gamma = (\gamma_1, \gamma_2, \cdots, \gamma_N)'$ and a covariance matrix Λ whose diagonal is 1 as $u \sim N(\gamma, \Lambda)$."

In addition,

"The correlation coefficient between 2 output neurons is given by $c_{\text{out}} = \eta_2 - \eta_1^2/\eta_1(1 - \eta_1)$."

should read:

"The correlation coefficient between 2 output neurons is given by $c_{\text{out}} = (\eta_2 - \eta_1^2)/[\eta_1(1 - \eta_1)]$."

In addition,

"The probability that exactly m neurons are active and N-m neurons are inactive is given"

should read:

"The probability that exactly m neurons are active and N-m neurons are inactive is given by"

In addition,

"The signal for detecting the input correlation is given by $\partial \mathrm{E}\frac{[F_{\text{obs}}(m)]}{/\partial c_{\text{in}}}$ and"

should read:

"The signal for detecting the input correlation is given by $\frac{\partial \mathrm{E}[F_{\text{obs}}(m)]}{\partial c_{\text{in}}}$ and"