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Author Correction: Optimal responsiveness and information flow in networks of heterogeneous neurons

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The original version of this article contained an error in the legends of Figure 3 and Figure 4, where it was erroneously stated that the Lyapunov exponent plotted in Figure 3 and Figure 4b is the largest Lyupanov exponent.

In Figure 3,

"Enhanced responsiveness corresponds to regions closer to instability. (**a**) The largest stability Lyapunov exponent λ (real part) of asynchronous dynamics as a function of the heterogeneity of inhibitory neurons (σ_I). Different colors indicate different parameters of the baseline external drive and the strength of excitatory-excitatory quantal conductance (ν_0, Q_{EE}), i.e. black (1.5 Hz, 1.5 nS), red (3 Hz, 1.5 nS), blue (2 Hz, 1.5 nS) and orange (3 Hz, 1.65 nS). Symbols are located at the value of σ_I for which the responsiveness R is maximum (same color code as continuous line). Different symbols indicate different amplitudes A of the input, diamond ($A = 0.1$ Hz), star ($A = 0.5$ Hz) and dot ($A = 1$ Hz). (**b**) The larger stability Lyapunov exponent λ of asynchronous dynamics as a function of the heterogeneity of inhibitory neurons (σ_I) and the strength of excitatory-excitatory quantal conductance Q_{EE} for a baseline external drive $\nu_0 = 1.5$ Hz. The dotted (diamond) line is the responsiveness R for an input amplitude $A = 0.1$ Hz ($A = 1Hz$) and $Q_{EE} = 1.5$ nS (as in Figs. 1 and 2). Such responsiveness has been properly rescaled on the y-axes (i.e. multiplied by an ad-hoc factor) in order to fit in the image."

now reads:

"Enhanced responsiveness corresponds to regions closer to instability. (**a**) The second largest stability Lyapunov exponent λ (real part) of asynchronous dynamics as a function of the heterogeneity of inhibitory neurons (σ_I). Different colors indicate different parameters of the baseline external drive and the strength of excitatory-excitatory quantal conductance (ν_0, Q_{EE}), i.e. black (1.5 Hz, 1.5 nS), red (3 Hz, 1.5 nS), blue (2 Hz, 1.5 nS) and orange (3 Hz, 1.65 nS). Symbols are located at the value of σ_I for which the responsiveness R is maximum (same color code as continuous line). Different symbols indicate different amplitudes A of the input, diamond ($A = 0.1$ Hz), star ($A = 0.5$ Hz) and dot ($A = 1$ Hz). (**b**) The second largest stability Lyapunov exponent λ of asynchronous dynamics as a function of the heterogeneity of inhibitory neurons (σ_I) and the strength of excitatory-excitatory quantal conductance Q_{EE} for a baseline external drive $\nu_0 = 1.5$ Hz. The dotted (diamond) line is the responsiveness R for an input amplitude $A = 0.1$ Hz ($A = 1Hz$) and $Q_{EE} = 1.5$ nS (as in Figs. 1 and 2). Such responsiveness has been properly rescaled on the y-axes (i.e. multiplied by an ad-hoc factor) in order to fit in the image."

In Figure 4,

"Heterogeneous networks admit more dynamical regimes compared to homogeneous networks. (**a**) Inhibitory neurons population stationary firing rate r_I^* in function of σ_I for $\overline{E}_L^I = -70$ mV. Black line indicates stable ($\lambda < 0$) asynchronous state, dashed blue line indicates unstable ($\lambda > 0$) asynchronous state where a limit cycle appears (red lines indicates maximum and minimum value of r_I in time). (**b**) The largest stability Lyapunov exponent λ (real part) of the asynchronous state as a function of the average resting potential of inhibitory neurons $\overline{E}_L^I$ and their standard deviation σ_I. Whenever $\lambda > 0$ the asynchronous state is unstable and a stable limit cycle appears. In direct network simulations we observe sparsely synchronous oscillations (see raster plots in panel (**c**) where we use $\overline{E}_L^I = -70$ mV and $\sigma_I = 0, 0.12, 0.2$ from top to bottom). In these simulations $Q_{EE} = 1.53$ nS."

now reads:

"Heterogeneous networks admit more dynamical regimes compared to homogeneous networks. (**a**) Inhibitory neurons population stationary firing rate r_I^* in function of σ_I for $E_L^I = -70$ mV. Black line indicates stable ($\lambda < 0$) asynchronous state, dashed blue line indicates unstable ($\lambda > 0$) asynchronous state where a limit cycle appears (red lines indicates maximum and minimum value of r_I in time). (**b**) The second largest stability Lyapunov exponent λ (real part) of the asynchronous state as a function of the average resting potential of inhibitory neurons E_L^I and their standard deviation σ_I. Whenever $\lambda > 0$ the asynchronous state is unstable and a stable limit cycle appears. In direct network simulations we observe sparsely synchronous oscillations (see raster plots in panel (**c**) where we use $E_L^I = -70$ mV and $\sigma_I = 0, 0.12, 0.2$ from top to bottom). In these simulations $Q_{EE} = 1.53$ nS."

As a result, in the Results section, under the subheading 'Optimal responsiveness comes from pushing the network at the edge of a dynamical transition',

"The maximum exponent λ is reported in Fig. 3a for different parameter setups."

now reads:

"The real part of the second largest exponent λ is reported in Fig. 3a for different parameter setups."

The original article has been corrected.