ERRATA

Erratum: Statistical cycling in coupled map lattices [Phys. Rev. E 50, 843 (1994)]

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The derivation of the sufficient conditions for asymptotic periodicity presented in Sec. V of our previous paper contains a mistake, and the proper calculation yields a condition for asymptotic periodicity and the cyclical decomposition of the transfer operator which is different from the one originally published. The condition that guarantees asymptotic periodicity [and should replace Eq. (17) of the original paper] is

$$|D\Phi^{-1}|_1[1+\sigma]<1\ , \tag{1}$$

where $|D\Phi^{-1}|_1$ is the 1-norm of the inverse of the derivative matrix associated with a coupled map lattice (CML) transformation in which the local map is piecewise linear and expanding, with constant slope on the interval.

As a result of this change, the phase diagram presented in the original paper is not correct. It must be replaced by the one that follows from using Eq. (1) of this Erratum. Obtaining the inverse matrices $D\Phi^{-1}$ is rather lengthy, even in simple cases, and so we do not reproduce the calculation here (the corrected version of the manuscript, containing this calculation for a simple example, can be obtained from the authors). An important consequence of this correction is that the determination of the eigenvalues [Eqs. (22)–(24)] is not necessary for the derivation of the proper phase diagram, and must be replaced by the calculation of the quantity $|D\Phi^{-1}|_1$. It is important to note that the slopes such that condition (1) of the present Erratum is satisfied for values of the coupling $\varepsilon\in(0,1)$ are always *greater* than 2. This renders the bounded variation approach unsatisfactory for the investigation of CML's in which the local dynamics are given by the tent maps (whose slope is always in (1,2]).

The conclusions presented in the original paper that were based on the numerical investigations are essentially unaltered. There is one exception: the separation of the parameter space of a lattice of diffusively coupled tent maps into two regions corresponding to two "phases," which was proposed in the original paper, is probably not valid; for high values of the coupling, for which the CML is no longer expanding, its activity is supported (asymptotically) on a set of measure zero in $\mathbb{R}^N$. Hence, in $\mathbb{R}^N$, the phase space density is a rather irregular function, which is not expected to be of bounded variation. Therefore, the Perron-Frobenius operator acting on $BV(\mathbb{R}^N)$ certainly cannot be asymptotically periodic. A new version of the manuscript, which contains all the details of the correct calculations, and some revised discussions can be obtained from the authors.

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