Erratum for: On Markov Chains, Attractors, and Neural Nets

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There are two examples given in section 3.3 of the paper (pages 349–352). The first of the two examples is a three matrix product cycle in four states. Here one may label this three matrix product cycle by assigning letters to each matrix. Let the cycle be $\ldots ABC \ldots$. A stationary cycle of state probability distributions and two state paths are given that do correspond to the product cycle but more properly, or more naturally, to the slightly rotated version of the same cycle given by $\ldots BCA \ldots$. Similarly, the second example is a four matrix product cycle in four states that one may label $\ldots DEFG \ldots$. The stationary cycle of distributions and the state paths given more properly belong to the slightly rotated version of the same cycle labeled $\ldots EFGD \ldots$. This means, essentially, that the coin is flipped at the end of the cycle just before the next cycle begins instead of at the beginning of the cycle. This subtle change in interpretation does not detract from the main thrust of the presentation in this section.

As was indicated in [4], all cycle transition epochs of stationary paths are regeneration points and once stationarity is reached it does not really matter which matrix starts the cycle. But the stationary cycle of distributions and state paths given should be properly associated to their corresponding transition matrix cycle order.

For the sake of consistency, the version of the Hajnal qualification given in [4] was used. In reality this qualification can be relaxed a little bit. All that is required is that any one matrix in the cycle be a regular scrambling matrix [17]. Thus, the matrices A and D can be first, middle, or last in the cycle. It does not make much difference because the paths are shifted anyway when all rotated matrix products are considered.

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