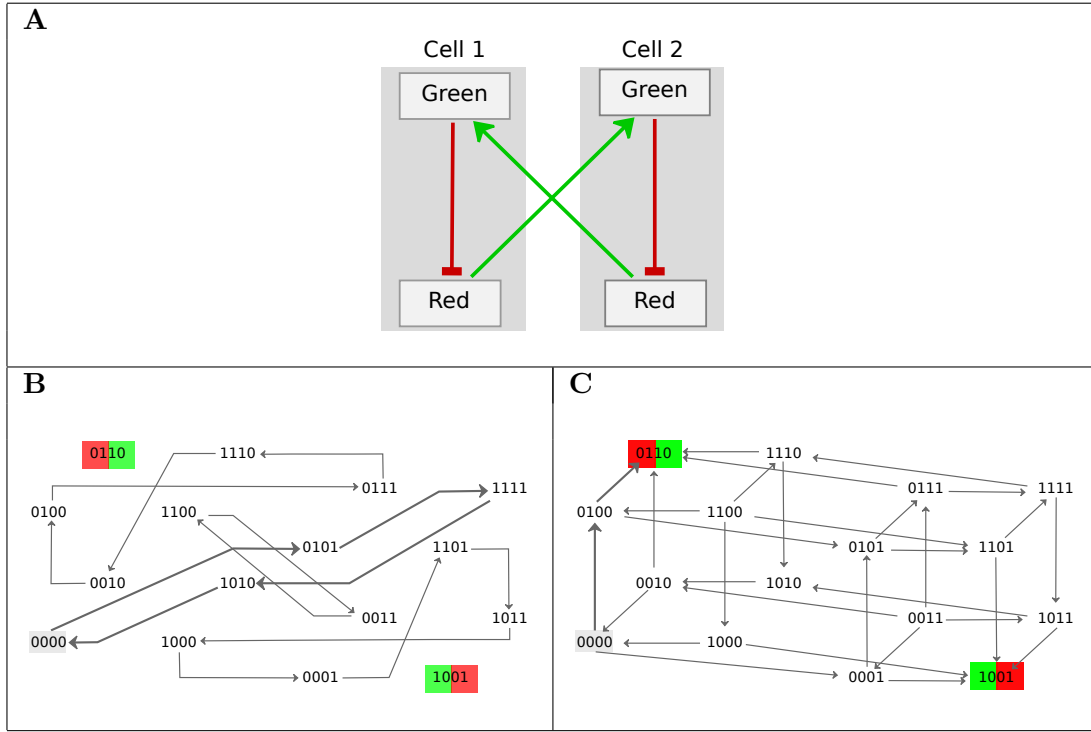


SUPPLEMENTARY TEXT

Dynamics of the lateral inhibition model under synchronous and asynchronous updates

The 2 cell model as displayed in panel (A) below is a simple positive regulatory circuit with 4 regulatory components, 2 actions and 2 inhibitions. The behaviour of such an elementary circuit has been fully characterised by Remy et al. [1]. The synchronous and asynchronous State Transition Graphs of this model are shown below. Starting from a "naive" state where all the components are set to 0, the synchronous dynamics is trapped in a terminal cycle (panel (B)), where the asynchronous dynamics end up in one of the two stable states (panel (C)). When considered over a 2D grid of cells, these behaviours are reproduced, leading to oscillations under a synchronous update (Fig. 2-B, main text) or to a stable pattern when cells are updated asynchronously enough (Fig. C-F, main text).



- [1] E Remy, B Mossé, C Chaouiya, and D Thieffry. A description of dynamical graphs associated to elementary regulatory circuits. *Bioinformatics*, 19 Suppl 2:ii172–8, Oct 2003.