

Term	Description	Notation
Network size	the number of nodes in the network	$N$
Out-weight vector ( $v_i$ )	a vector of probabilities $w_{ij}$ that a random walker on node $v_i$ will transition to $v_j$	$W_i^{out} = \{w_{i1}, w_{i2}, , ...w_{ij}, ...w_{iN}\}$
Effective information (network)	the total information in a causal structure, in bits	$EI = H(\langle W_i^{out} \rangle) - \langle H(W_i^{out}) \rangle$
Determinism ( $v_i$ )	how certain about next steps is a random walker on $v_i$	$\text{det}_i = \log_2(N) - H(W_i^{out})$
Degeneracy (network)	how distributed the certainty is over the nodes of the network	$\text{degeneracy} = \log_2(N) - H(\langle W_i^{out} \rangle)$
Effect information ( $v_i$ )	the contribution of each node $v_i$ to the network's $EI$	$EI_i = D_{KL}[W_i^{out}    \langle W_i^{out} \rangle]$
Micro-nodes in a macro-node	the set of micro-nodes grouped into a macro-node in the new network, $G_M$	$S = \{v_i, v_j, ... \}$ , of length $N_S$
Macro-node out-weights	the out-weights from macro-node, $\mu$ , to its neighbors	$W_\mu^{out} = \sum_{i \in S} W_i^{out} \cdot \left( \frac{1}{N_S} \right)$
Macro-node out-weights given input weights	the out-weights from macro-node, $\mu$ , to its neighbors, <i>conditioned</i> on in-weights to the micro-nodes, $v_i \in S$	$W_{\mu j}^{out} = \sum_{i \in S} W_i^{out} \cdot \left( \frac{\sum_{j \rightarrow i} w_{ji}}{\sum_{j \rightarrow k \in S} w_{jk}} \right)$
Macro-node out-weights given the stationary distribution	the out-weights from macro-node, $\mu$ , to its neighbors, conditioned on the stationary probabilities, $\pi_i$ , of micro-nodes, $v_i \in S$	$W_{\mu \pi}^{out} = \sum_{i \in S} W_i^{out} \cdot \left( \frac{\pi_i}{\sum_{k \in S} \pi_k} \right)$