***eLife’s* transparent reporting form**

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* You should state whether an appropriate sample size was computed when the study was being designed
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* If no explicit power analysis was used, you should describe how you decided what sample (replicate) size (number) to use

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This is a theoretic paper, and it does not present any new data.

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* You should report how often each experiment was performed
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* High-throughput sequence data should be uploaded before submission, with a private link for reviewers provided (these are available from both GEO and ArrayExpress)

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Simulations summarized in Figure 8 were repeated 10 times, and this information is given in the caption of the figure.

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* Statistical analysis methods should be described and justified
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**Group allocation**

* Indicate how samples were allocated into experimental groups (in the case of clinical studies, please specify allocation to treatment method); if randomization was used, please also state if restricted randomization was applied
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* We encourage you to upload relevant additional data files, such as numerical data that are represented as a graph in a figure, or as a summary table
* Where provided, these should be in the most useful format, and they can be uploaded as “Source data” files linked to a main figure or table
* Include model definition files including the full list of parameters used
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Please indicate the figures or tables for which source data files have been provided:

For Figures 3C, 4B, 7, 8, 11, Matlab codes have been provided that generated these figures. It is stated at the start of the Methods section that all codes are available at MRC Brain Network Dynamics Unit Data Sharing Platform (<https://data.mrc.ox.ac.uk/data-set/simulations-action-inference>).

These codes include Matlab functions with names corresponding to the figures, e.g. Figure11.m