

Appendix A

A.1 Supplementary Methods

Details of Involved Tasks.

The specification of the four task sets used in Fig. 2 is as follows:

3 tasks: {'fdgo', 'reactgo', 'delaygo'}

6 tasks: {'fdgo', 'reactgo', 'delaygo', 'fdanti', 'reactanti', 'delayanti'},

11 task: {'fdgo', 'reactgo', 'delaygo', 'fdanti', 'reactanti', 'delayanti', 'dm1', 'dm2', 'contextdm1', 'contextdm2', 'multidm'}

16 tasks: {'fdgo', 'reactgo', 'delaygo', 'fdanti', 'reactanti', 'delayanti', 'dm1', 'dm2', 'contextdm1', 'contextdm2', 'multidm', 'delaydm1', 'delaydm2', 'contextdelaydm1', 'contextdelaydm2', 'multidelaydm'}

20 tasks: {'fdgo', 'reactgo', 'delaygo', 'fdanti', 'reactanti', 'delayanti', 'dm1', 'dm2', 'contextdm1', 'contextdm2', 'multidm', 'delaydm1', 'delaydm2', 'contextdelaydm1', 'contextdelaydm2', 'multidelaydm', 'dmsgo', 'dmsnogo', 'dmcgo', 'dmcnogo'}

A.2 Supplementary Results

Complete Results across All Models

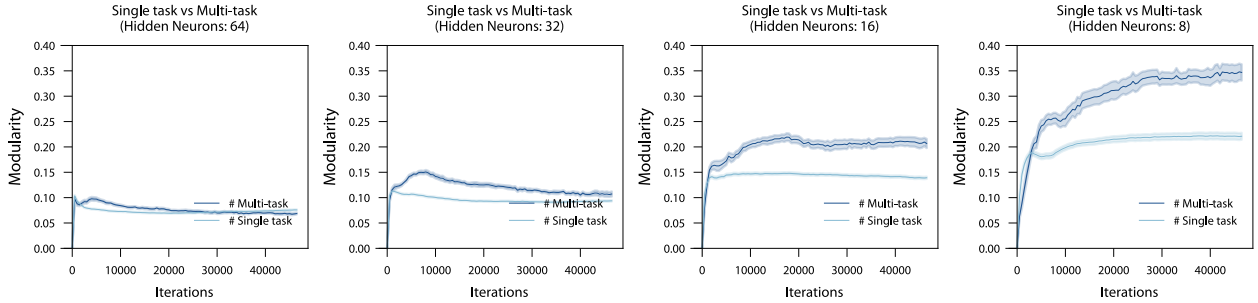


Fig. A1: The complete results across models of all sizes

Table A1: The p value table with respect to the curves in Fig. A1

Iterations	12000	15000	18000	21000	24000	27000	30000	33000	36000	39000	42000
# 64	0.0308	0.0326	0.0531	0.2373	0.4750	0.7009	0.7214	0.7412	0.4118	0.4677	0.1829
# 32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0006	0.0076	0.0227
# 16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
# 8	0.0029	0.0005	0.0004	0.0005	0.0001	0.0001	0.0001	0.0000	0.0001	0.0002	0.0001

18 A.3 Modularity of Neural Representation Similarity over Iterations

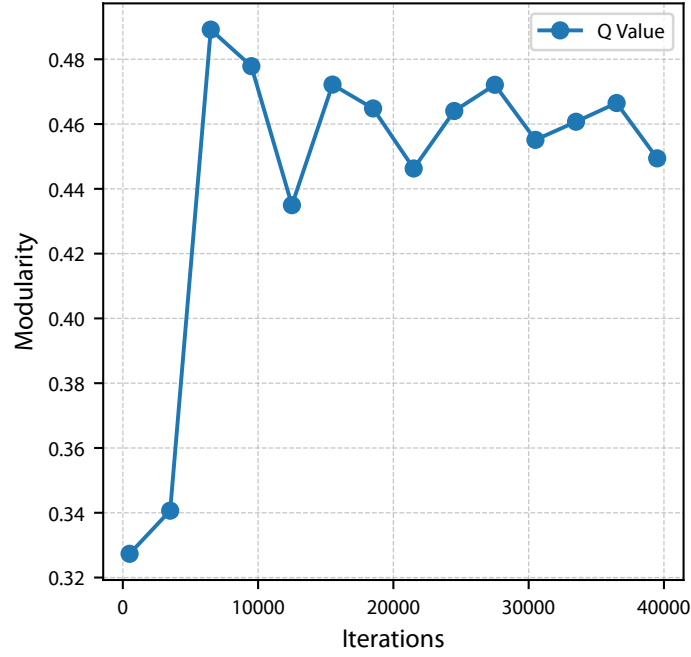


Fig. A2: The Q value with respect to the evolution in Fig3c. Community louvain method in bct package is applied to analyze the correlation matrix in negative asymmetric mode.