

Exploring reference frame integration using response demands in a tactile TOJ task - Supplementary Material

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Experiment 1

Convergence metric

Table S1: Convergence metric (R interval) for the population parameters

Population Parameter	Rinterval
External Standard Deviation	0.98
External Task Context Parameter	1.01
External Weight	1.00
Internal Standard Deviation	1.00
Internal Task Context Parameter	1.01
Internal Weight	1.00

Table S2: Convergence metric (R interval) for the participant parameters

Participant	External Weight	Internal Weight
1	1.00	1.00
2	1.00	1.00
3	1.00	1.00
4	1.00	1.00
5	1.00	1.00
6	1.00	1.00
7	1.02	1.02
8	1.00	1.00
9	1.01	1.00
10	1.00	1.00
11	1.00	1.01
12	1.00	1.00
13	1.00	1.00
14	1.00	1.00
15	1.01	1.02
16	1.01	1.01
17	1.01	1.01
18	1.01	1.01
19	1.01	1.00
20	1.00	1.00

Acceptance Rate

Table S3: Acceptance rate for each MCMC run. Acceptance rate was calculated after the burn-in period (50,000 trials).

Iteration	Acceptance Rate
1	0.25
2	0.25
3	0.25
4	0.25
5	0.25

Parameter value by trial

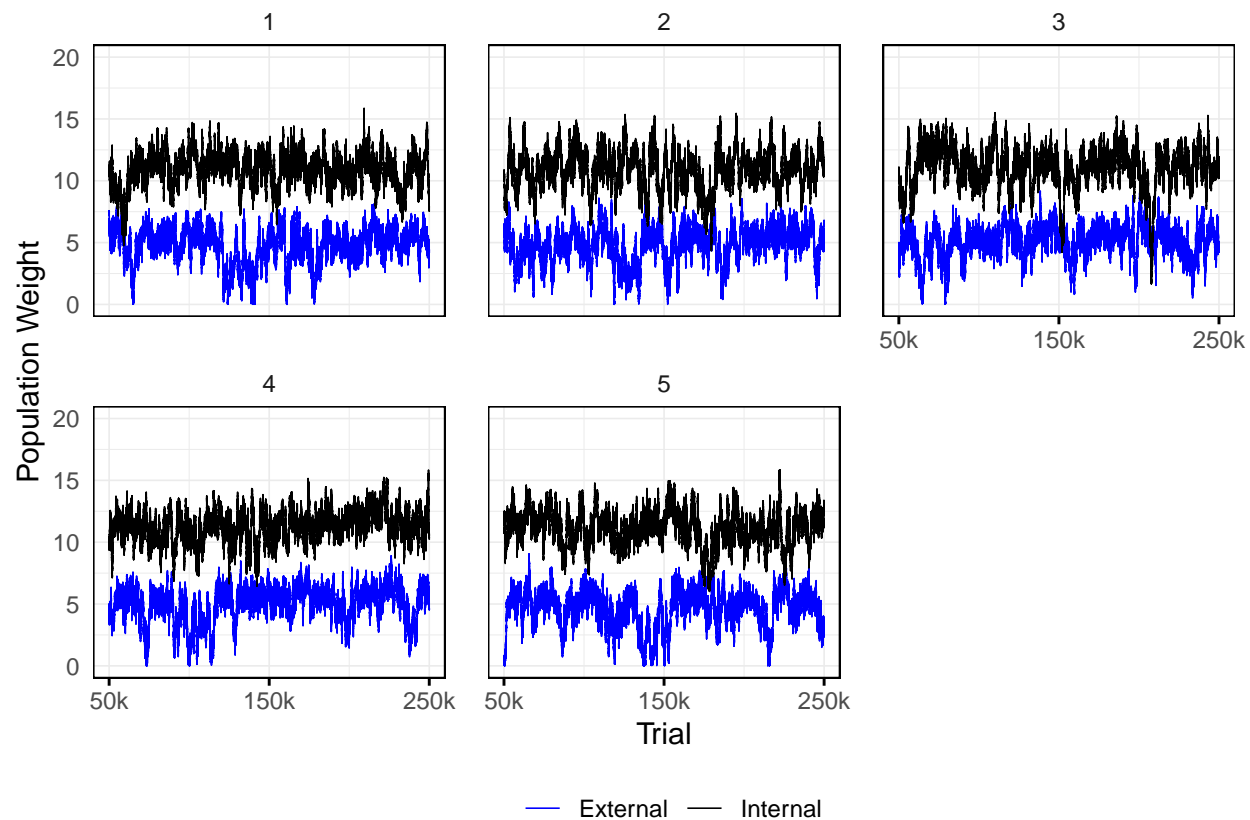


Figure S1: Chosen population weight parameter values on every trial. The first 50,000 trials were removed as the burn-in period.

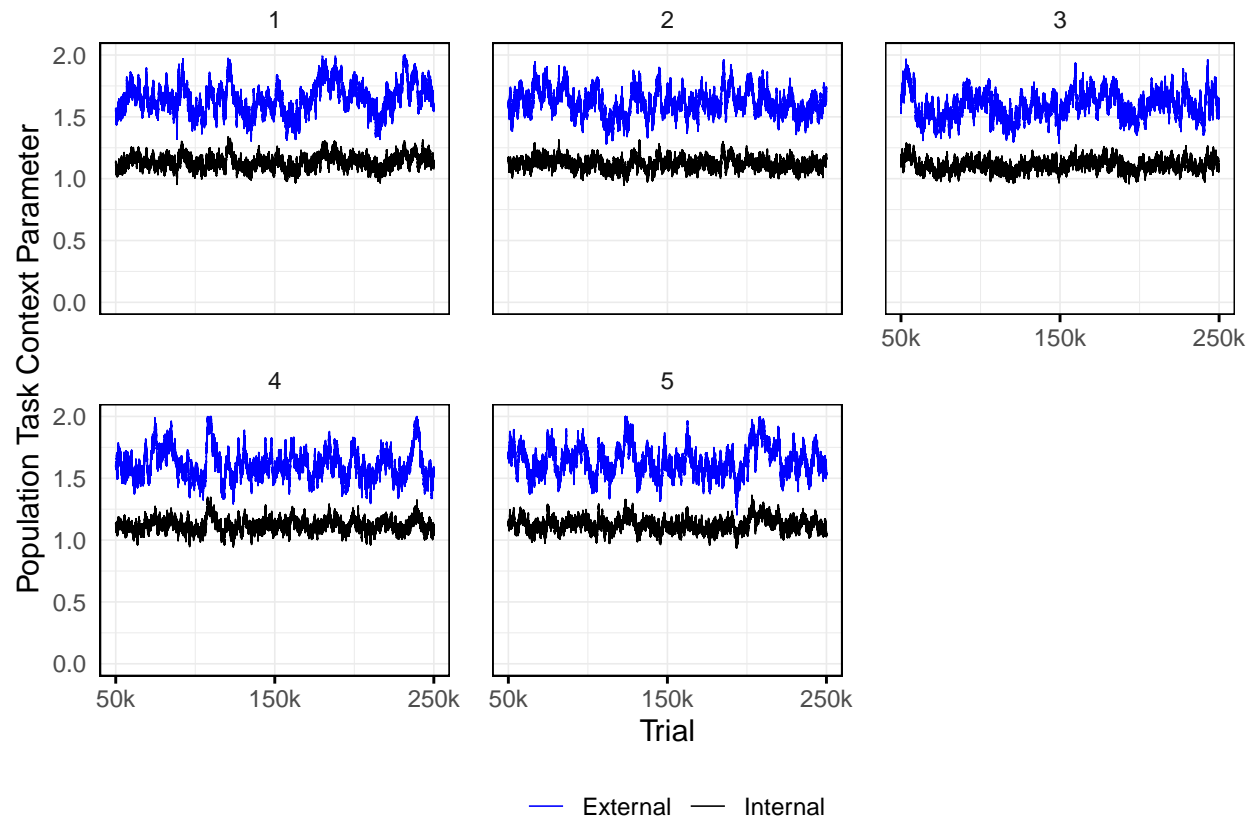


Figure S2: Chosen population task context parameter values on every trial. The first 50,000 trials were removed as the burn-in period.

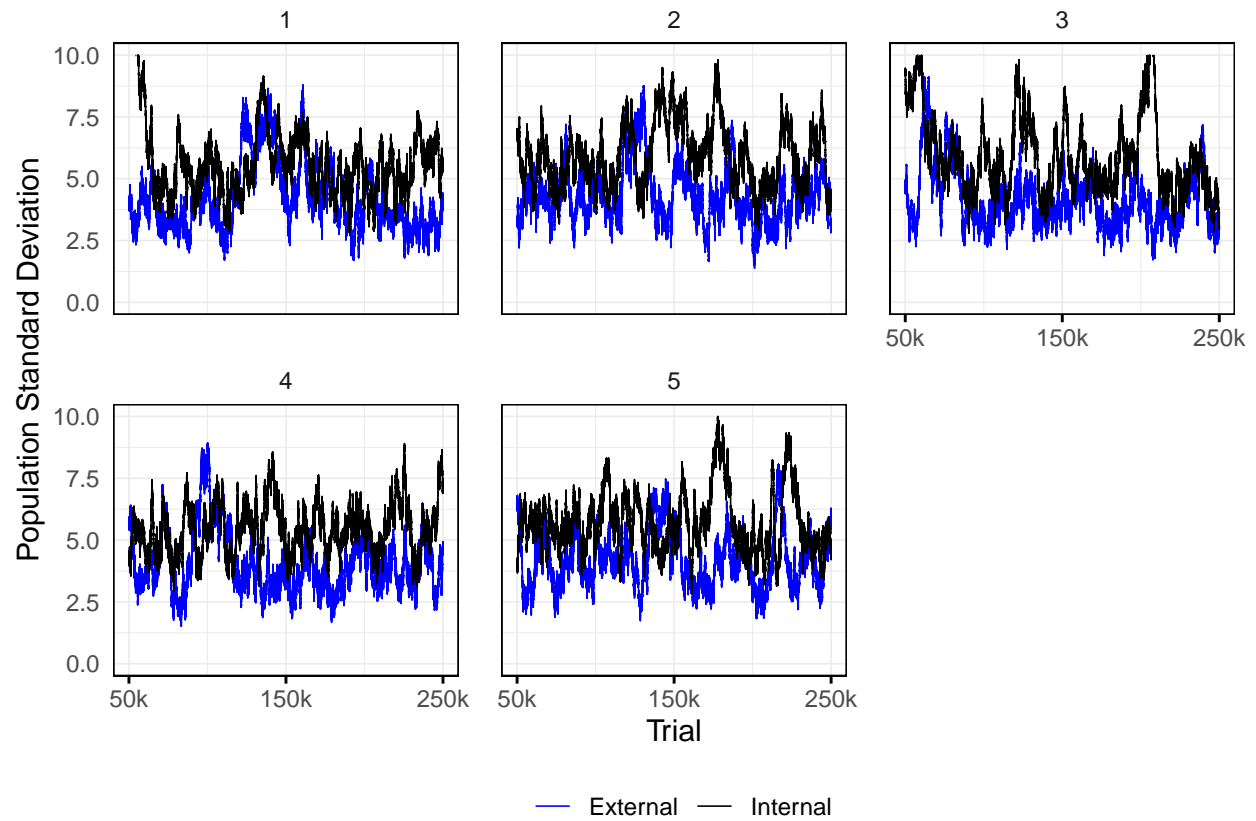


Figure S3: Chosen population standard deviation parameter values on every trial. The first 50,000 trials were removed as the burn-in period.

Posterior distributions for each parameter separated by iteration

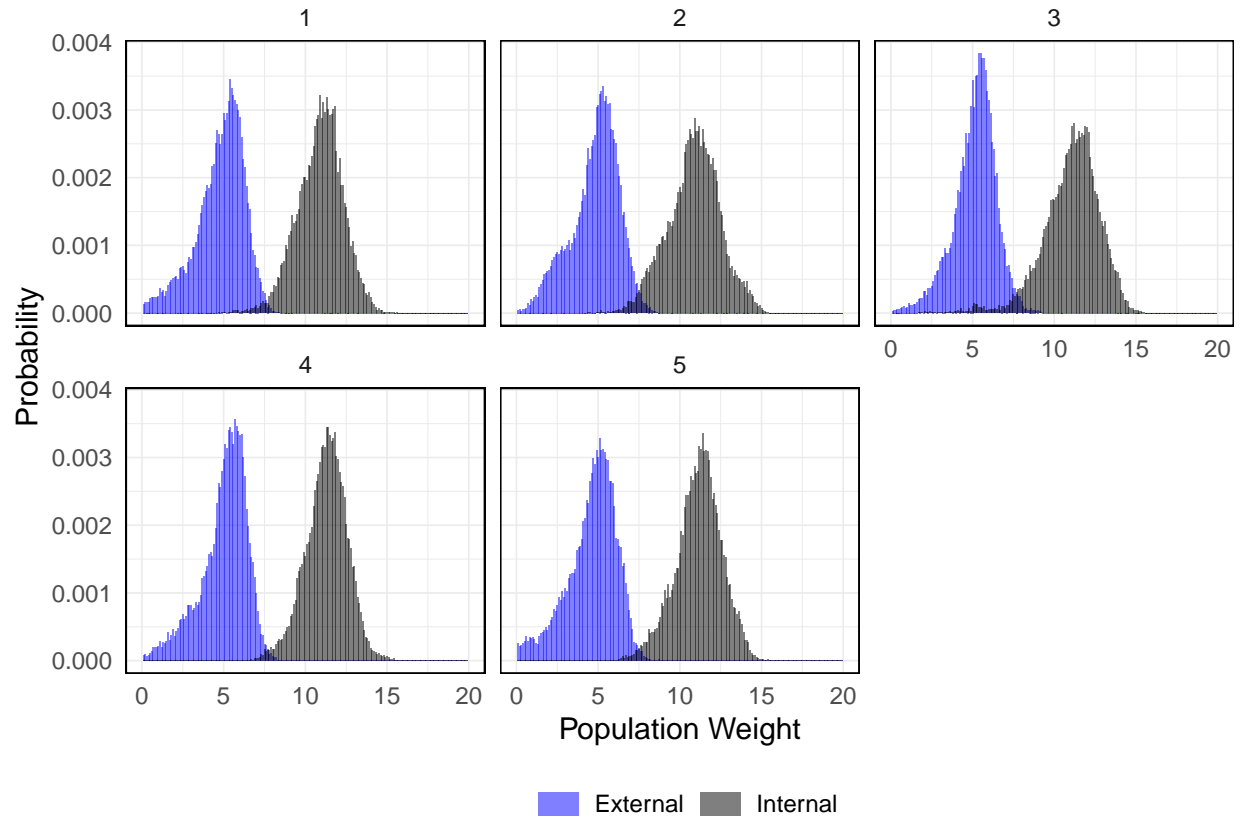


Figure S4: Posterior distributions of the population weight parameters for each MCMC run. The outputted histogram for each weight parameter was normalized to obtain the probability for each weight (number of observations of each weight divided by the total number of observations).

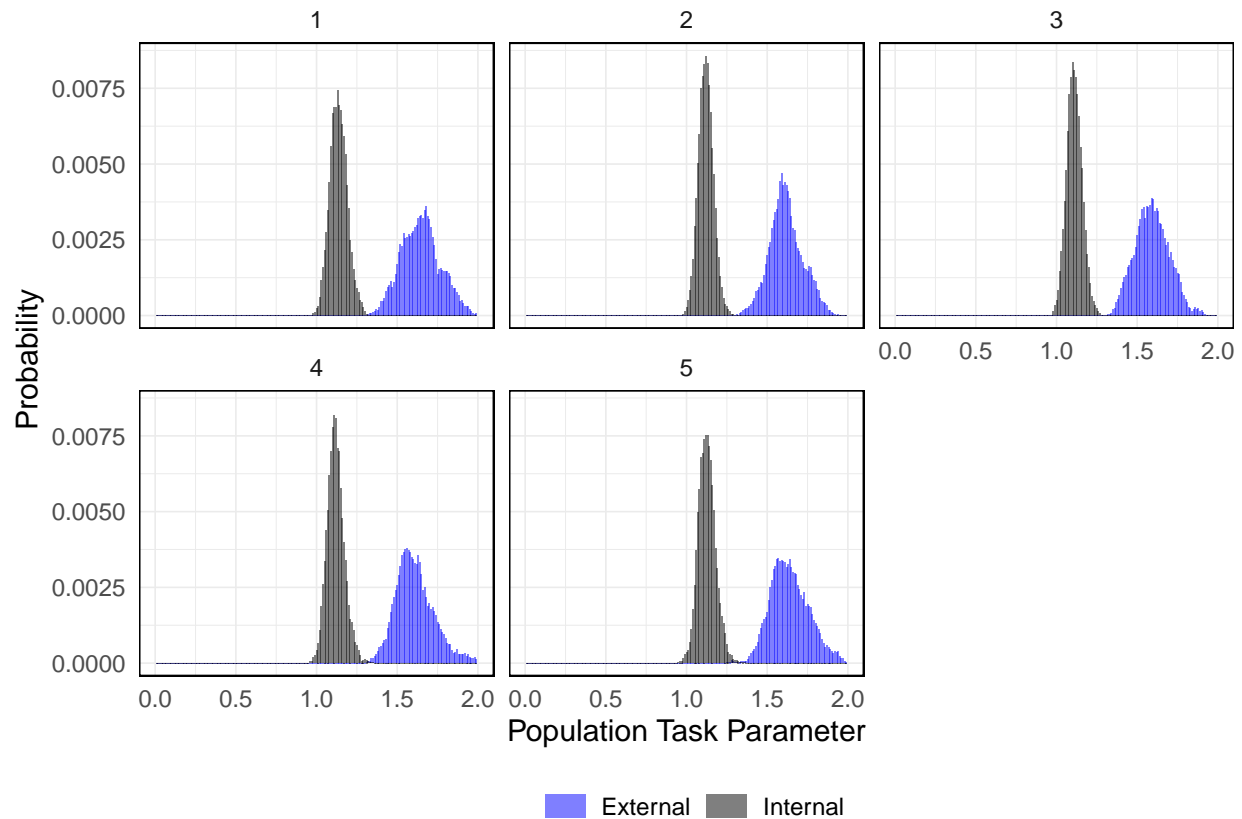


Figure S5: Posterior distributions of the population task context parameters for each MCMC run. The outputted histogram for each task context parameter was normalized to obtain the probability for each task context parameter (number of observations of each parameter divided by the total number of observations).

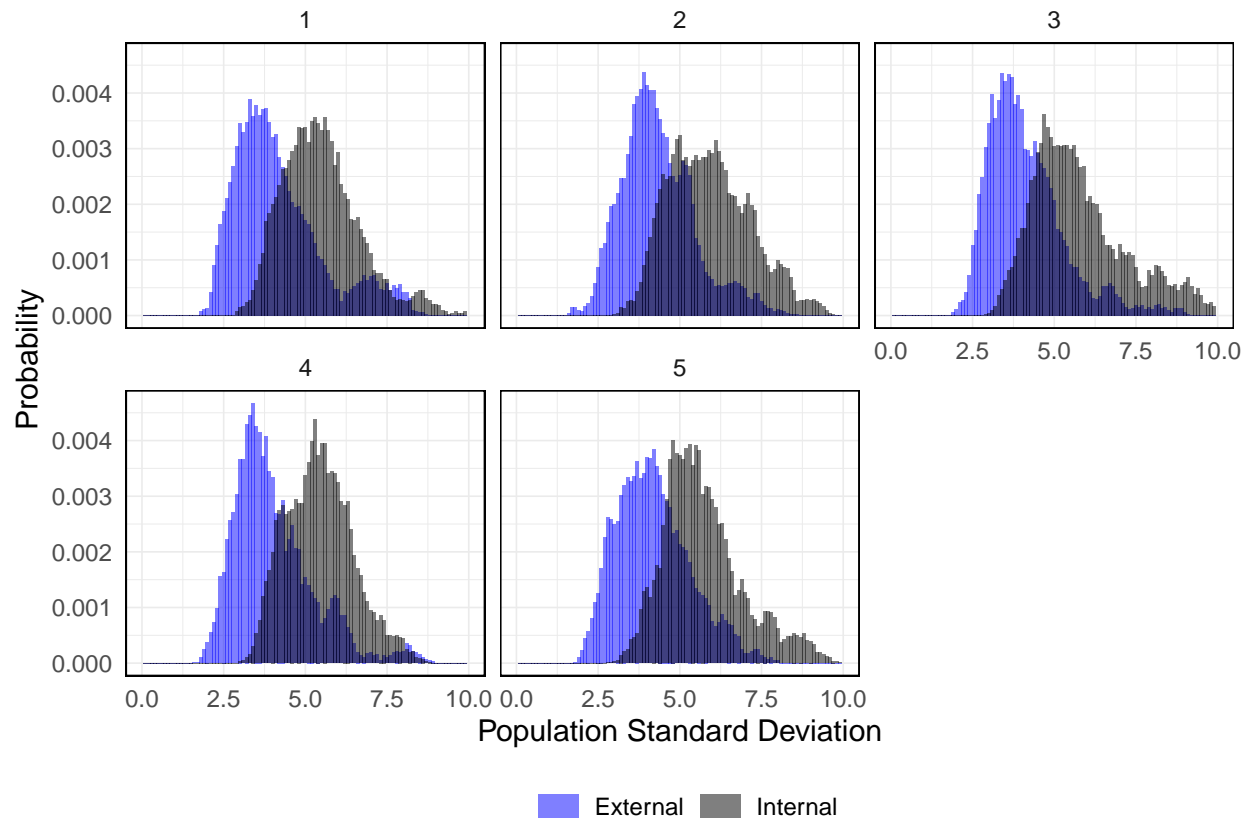


Figure S6: Posterior distributions of the population standard deviation parameters for each MCMC run. The outputted histogram for each standard deviation parameter was normalized to obtain the probability for each standard deviation (number of observations of each standard deviation divided by the total number of observations).

Overall posterior distributions for each parameter

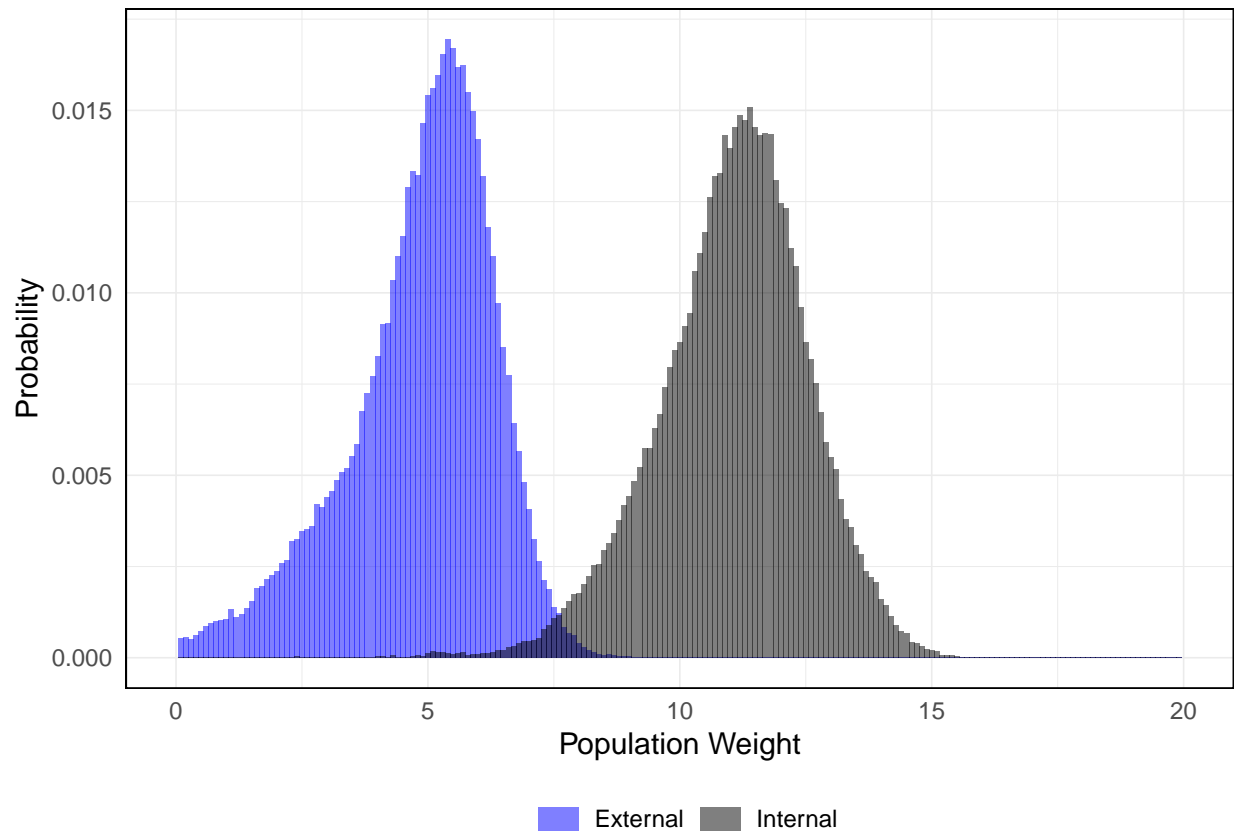


Figure S7: Overall posterior distribution for the population weight parameters. The output from the 5 MCMC runs have been combined together to obtain the overall probability of each parameter.

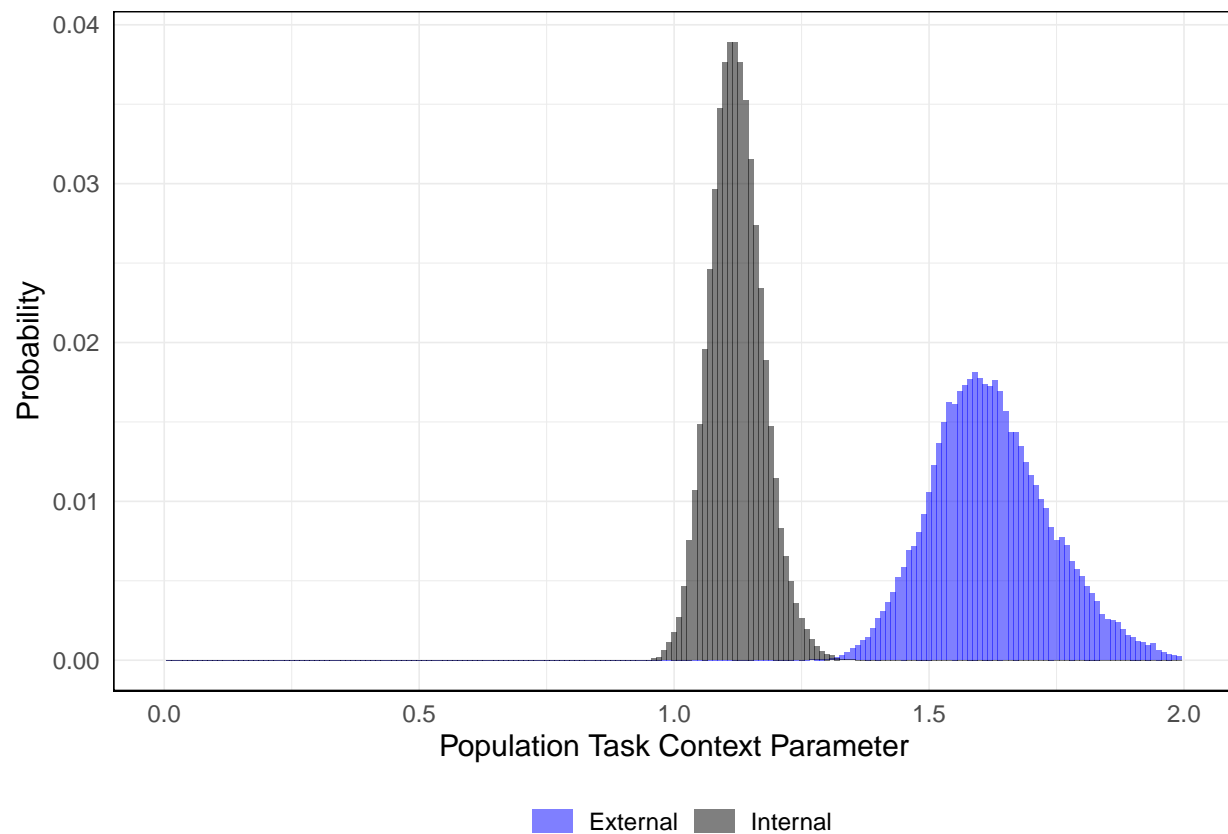


Figure S8: Overall posterior distribution for the population task context parameters. The output from the 5 MCMC runs have been combined together to obtain the overall probability of each parameter.

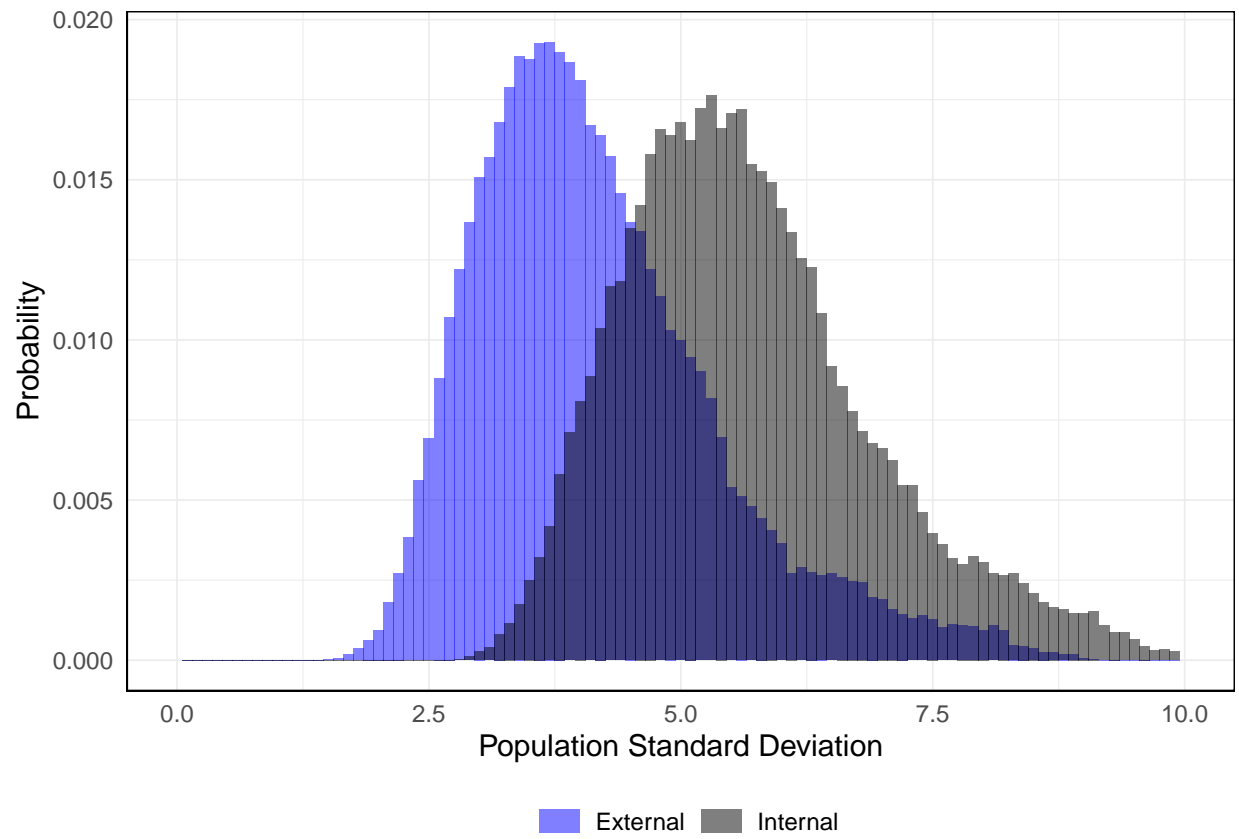


Figure S9: Overall posterior distribution for the population standard deviation parameters. The output from the 5 MCMC runs have been combined together to obtain the overall probability of each parameter.

Posterior distribution of weights

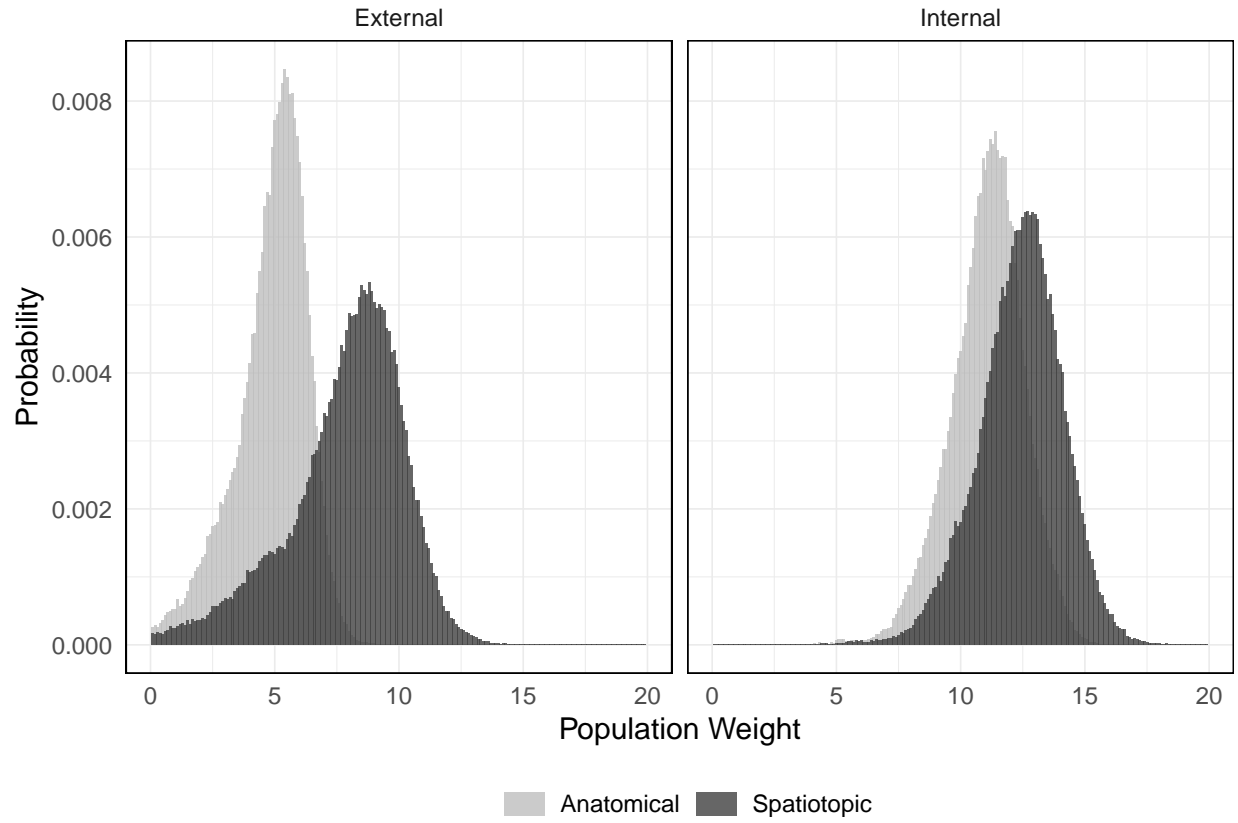


Figure S10: Overall posterior distribution for the population weight parameters for each condition. The values for the allocentric condition were calculated by multiplying the somatotopic weight parameter by the task context parameter on each trial.

Experiment 2

Convergence Metric

Table S4: Convergence metric (R interval) for the population parameters

Population Parameter	Rinterval
External Standard Deviation	1.02
External Task Context Parameter	1.00
External Weight	1.00
Internal Standard Deviation	1.01
Internal Task Context Parameter	1.00
Internal Weight	1.00

Table S5: Convergence metric (R interval) for the participant parameters

Participant	External Weight	Internal Weight
1	1.01	1.00
2	1.01	1.01
3	1.00	1.00
4	1.02	1.02
5	1.01	0.99
6	1.00	1.00
7	1.00	1.00
8	1.00	1.01
9	1.00	1.00
10	1.01	1.00
11	1.00	1.00
12	1.00	0.99
13	1.01	1.00
14	1.00	1.00
15	1.00	1.00
16	1.00	1.00
17	1.00	1.01
18	1.00	1.00
19	1.00	1.00
20	1.00	1.00
21	1.00	1.00
22	1.01	1.01
23	1.00	1.00
24	1.00	1.00
25	1.00	1.00
26	1.05	1.04
27	1.00	1.00
28	1.03	1.03
29	1.01	1.01
30	1.01	1.00
31	1.00	1.00
32	1.00	1.01
33	1.00	1.00
34	1.00	1.00
35	1.01	1.01
36	1.00	1.00
37	1.00	1.00
38	1.00	1.00
39	1.01	1.01
40	1.00	1.00
41	1.00	1.00
42	1.00	1.00
43	1.00	1.00

Acceptance Rate

Table S6: Acceptance rate for each MCMC run. This was calculated after the burn-in period (50,000 trials).

Iteration	Acceptance Rate
1	0.26
2	0.25
3	0.26
4	0.26
5	0.25

Parameter value by trial

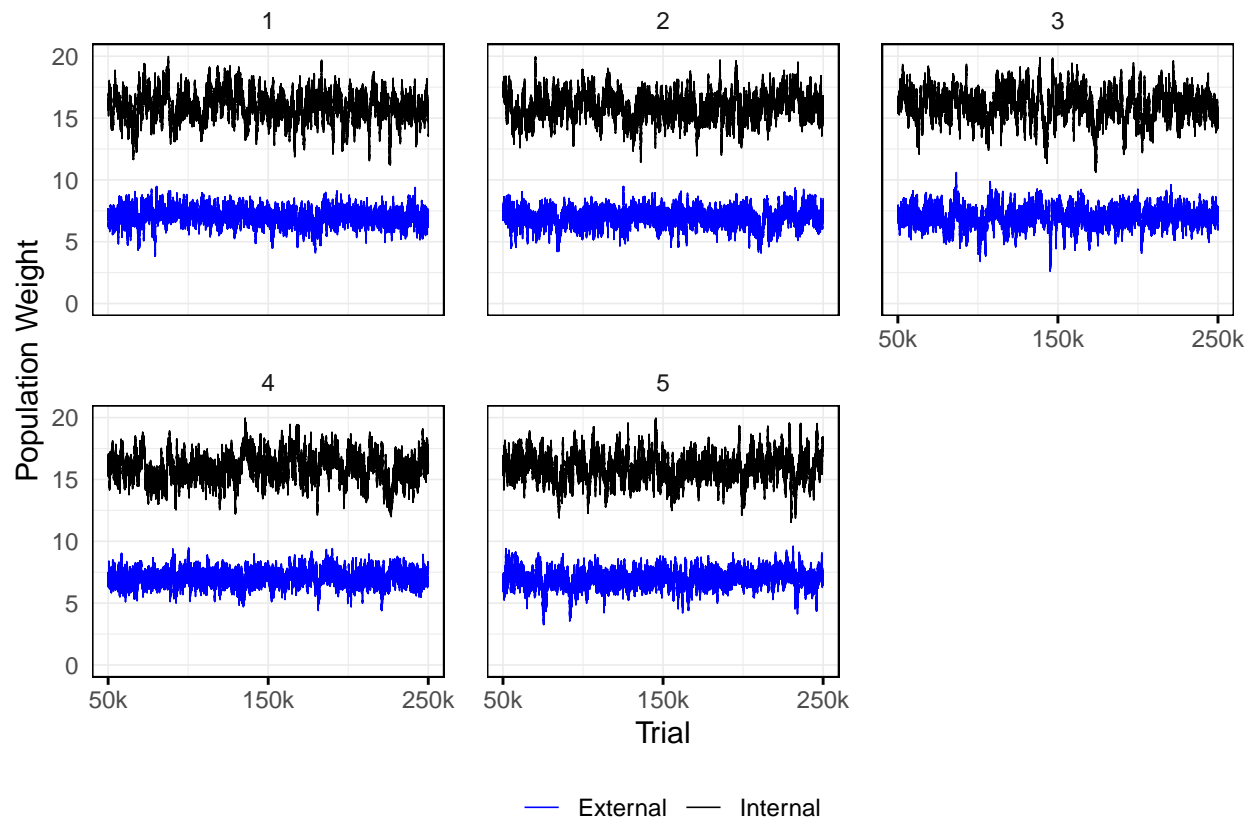


Figure S11: Chosen population weight parameter values on every trial. The first 50,000 trials were removed as the burn-in period.

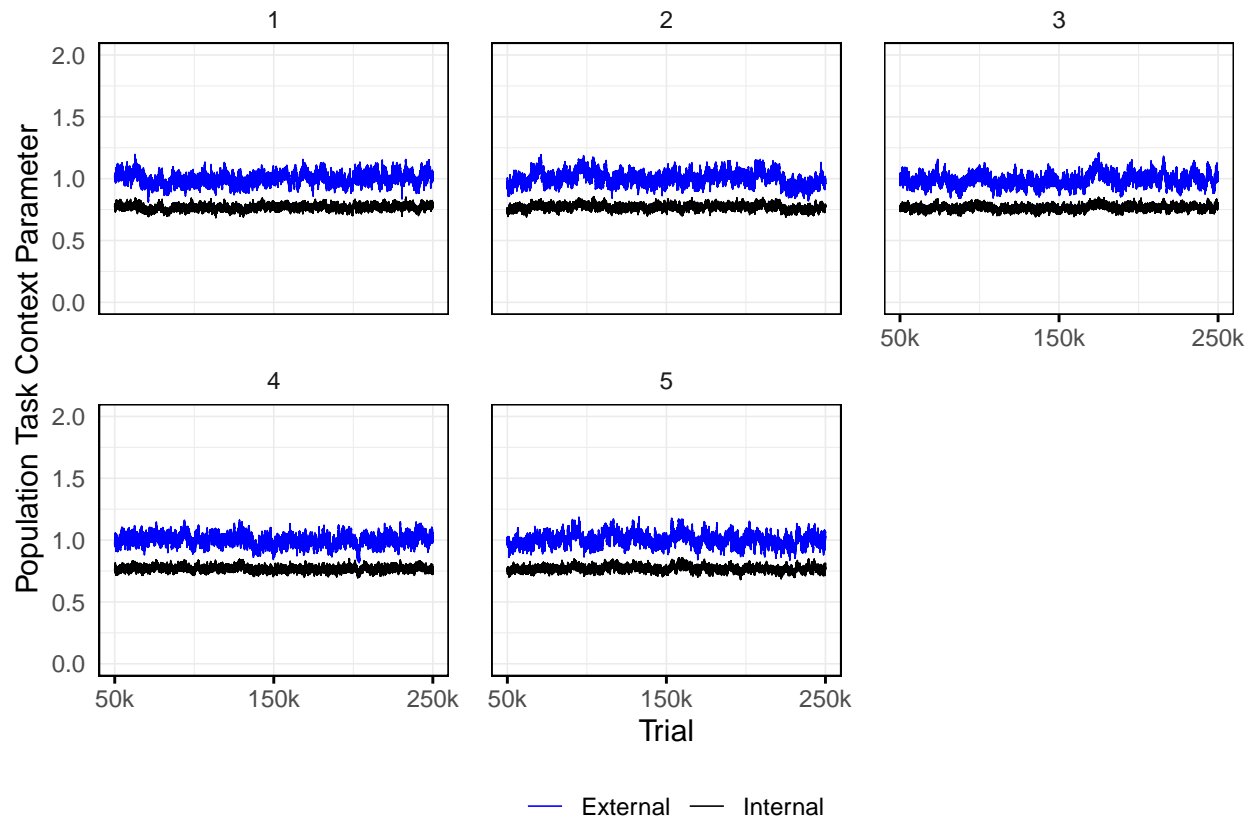


Figure S12: Chosen population task context parameter values on every trial. The first 50,000 trials were removed as the burn-in period.

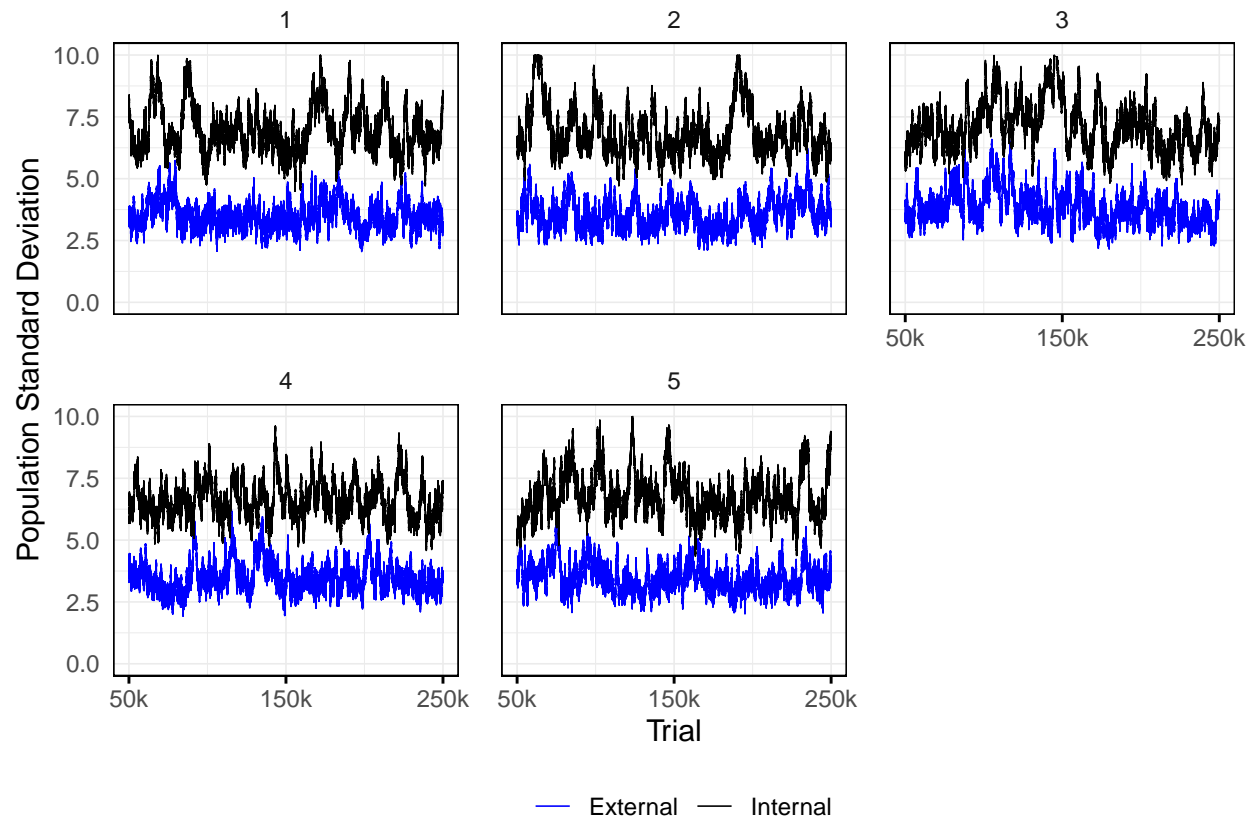


Figure S13: Chosen population standard deviation parameter values on every trial. The first 50,000 trials were removed as the burn-in period.

Posterior distributions for each parameter separate by iteration

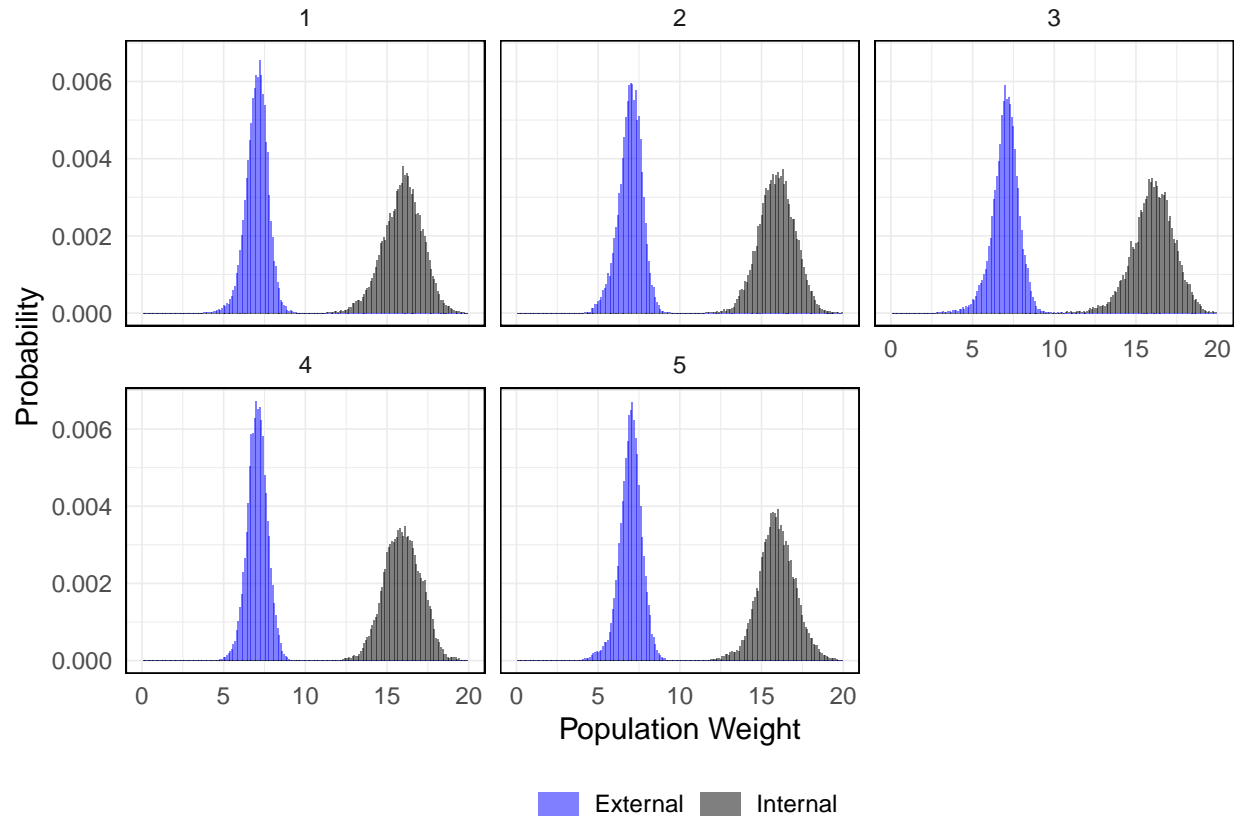


Figure S14: Posterior distributions of the population weight parameters for each MCMC run. The outputted histogram for each weight parameter was normalized to obtain the probability for each weight (number of observations of each weight divided by the total number of observations).

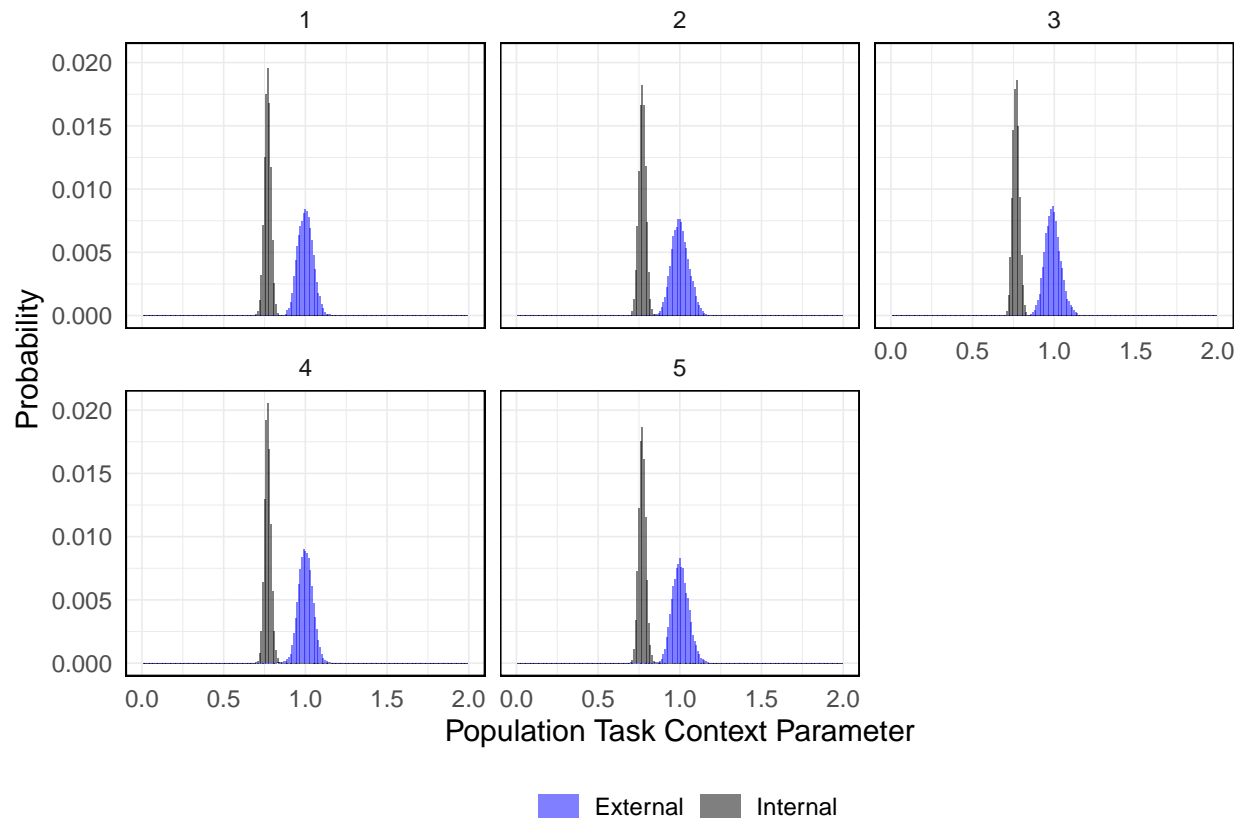


Figure S15: Posterior distributions of the population task context parameters for each MCMC run. The outputted histogram for each task context parameter was normalized to obtain the probability for each task context parameter (number of observations of each parameter divided by the total number of observations).

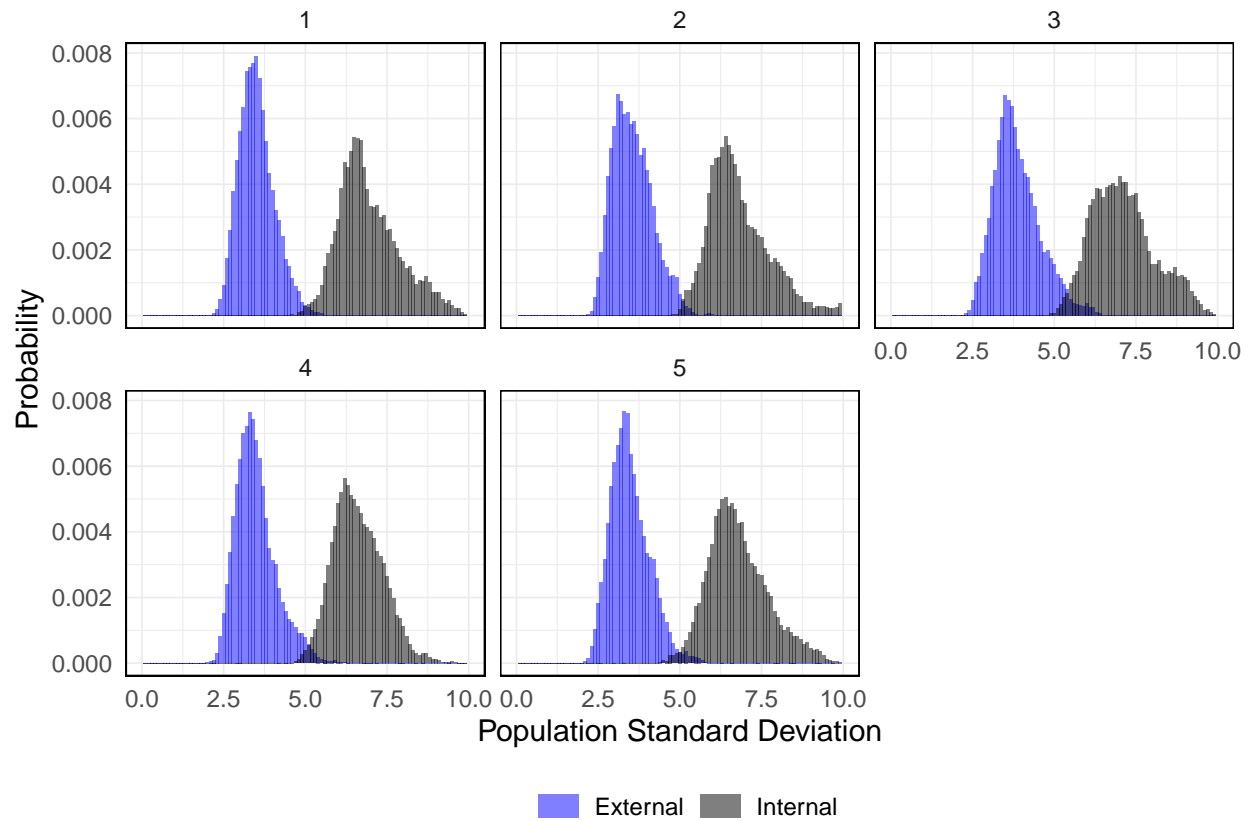


Figure S16: Posterior distributions of the population standard deviation parameters for each MCMC run. The outputted histogram for each standard deviation parameter was normalized to obtain the probability for each standard deviation (number of observations of each standard deviation divided by the total number of observations).

Overall posterior distributions for each parameter

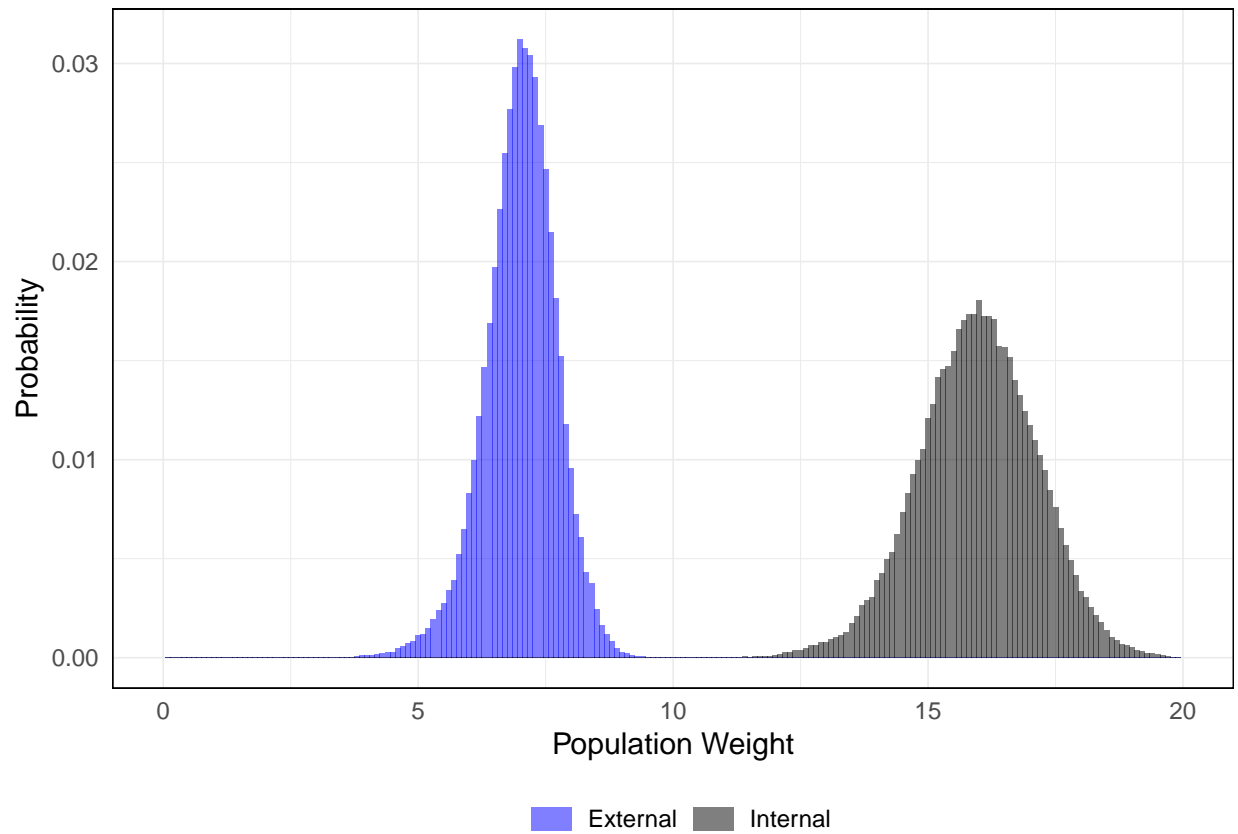


Figure S17: Overall posterior distribution for the population weight parameters. The output from the 5 MCMC runs have been combined together to obtain the overall probability of each parameter.

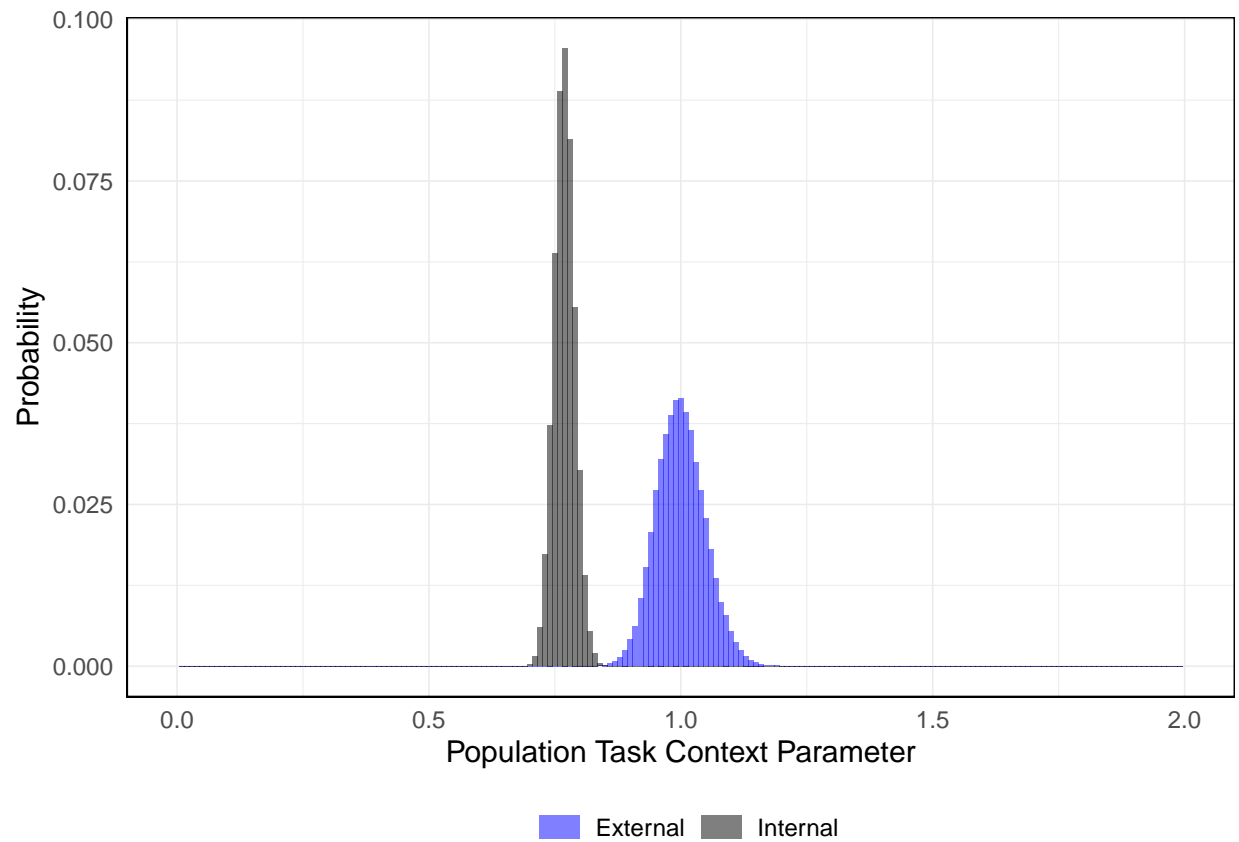


Figure S18: Overall posterior distribution for the population task context parameters. The output from the 5 MCMC runs have been combined together to obtain the overall probability of each parameter.

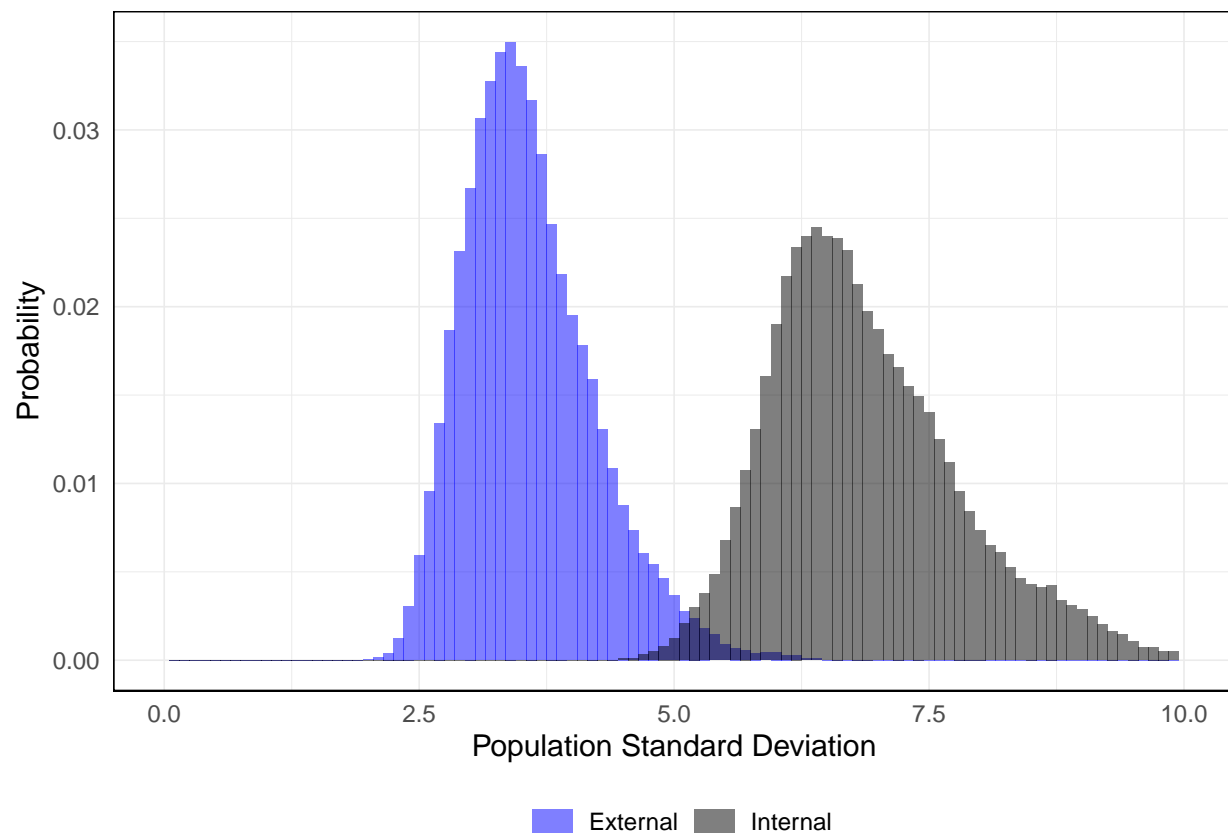


Figure S19: Overall posterior distribution for the population standard deviation parameters. The output from the 5 MCMC runs have been combined together to obtain the overall probability of each parameter.

Posterior distribution of weights

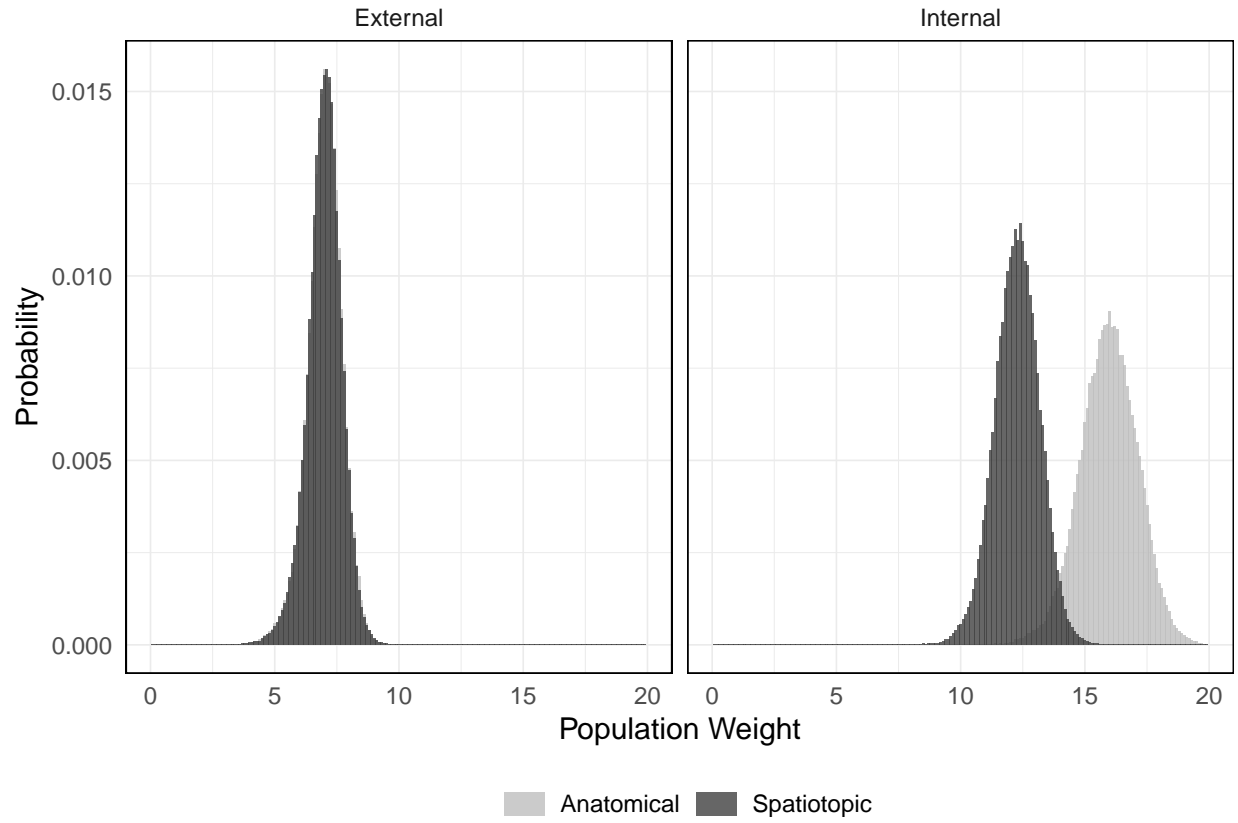


Figure S20: Overall posterior distribution for the population weight parameters for each condition. The values for the allocentric condition were calculated by multiplying the somatotopic weight parameter by the task context parameter on each trial.