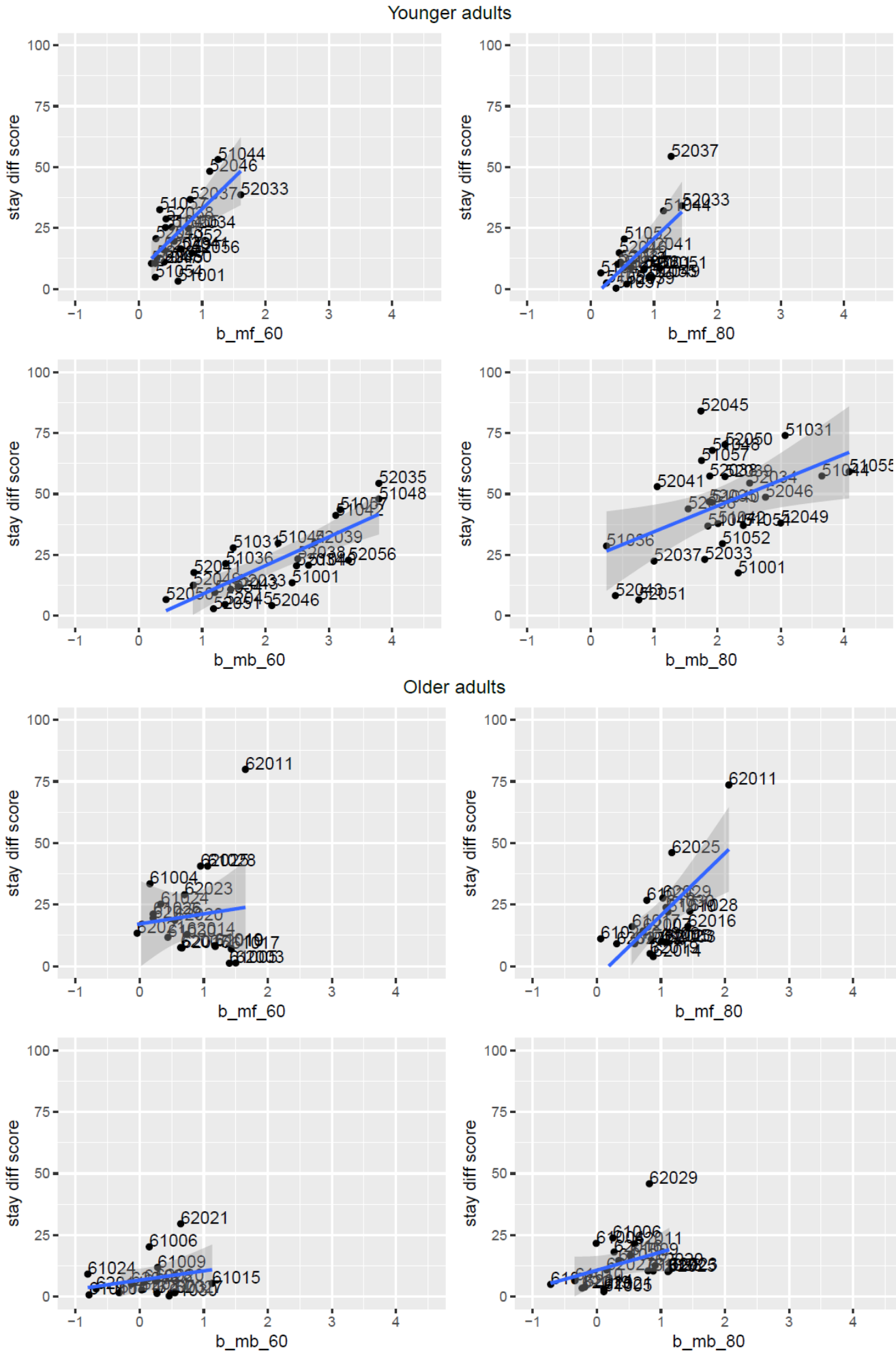
Computational Model

The model is a version of the one from Daw et al., (2011) modified for better estimation in an individual differences setting (similar to the model in Otto et al., 2013 and Sharp et al., 2015). The model was estimated using Markov Chain Monte Carlo (MCMC) inference, which allows drawing samples from the posterior distribution in a generative model of data, conditional on the data.

The relative model-based vs. model-free weighting parameter w and overall first-stage softmax weight β have been equivalently re-parameterized as two weights (with βMF=$\beta\cdot(1-w)$ and βMB=$\beta\cdot w$); the eligibility trace parameter λ has been fixed to 1; and the update rules for QMF and QMB have been rescaled by dividing the rt term by the learning rate α (which simply rescales the Qs and the softmax weight parameters to values that are more robust to variation in α over subjects.)

Results so far…

		Mean	**Median**
subject level	alpha - YA	0.633	0.633
	alpha - OA	0.454	0.452
	b_mb_60_YA	2.112	2.106
	b_mb_60_OA	0.060	0.061
	b_mb_80_YA	1.994	1.986
	b_mb_80_OA	0.312	0.310
	b_mf_60_YA	0.477	0.474
	b_mf_60_OA	0.691	0.683
	b_mf_80_YA	0.657	0.651
	b_mf_80_OA	0.841	0.834
	b2_YA	2.037	2.031
	b2_OA	0.902	0.899
	b_rep_YA	0.830	0.828
	b_rep_OA	1.407	1.405
group level	b_mb_age_60	-1.97	-1.97
	b_mf_age_60	0.22	0.22
	b_mb_age_80	-1.63	-1.63
	b_mf_age_80	0.18	0.17
	b_mb_cond	-0.1	-0.1
	b_mf_cond	0.19	0.19


Younger adults
stay diff score
b_mf_60
b_mf_80
b_mb_60
b_mb_80
Older adults
stay diff score
b_mf_60
b_mf_80
b_mb_60
b_mb_80

Older adults