

# Superager Elastic Net Regression: Results

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## Results

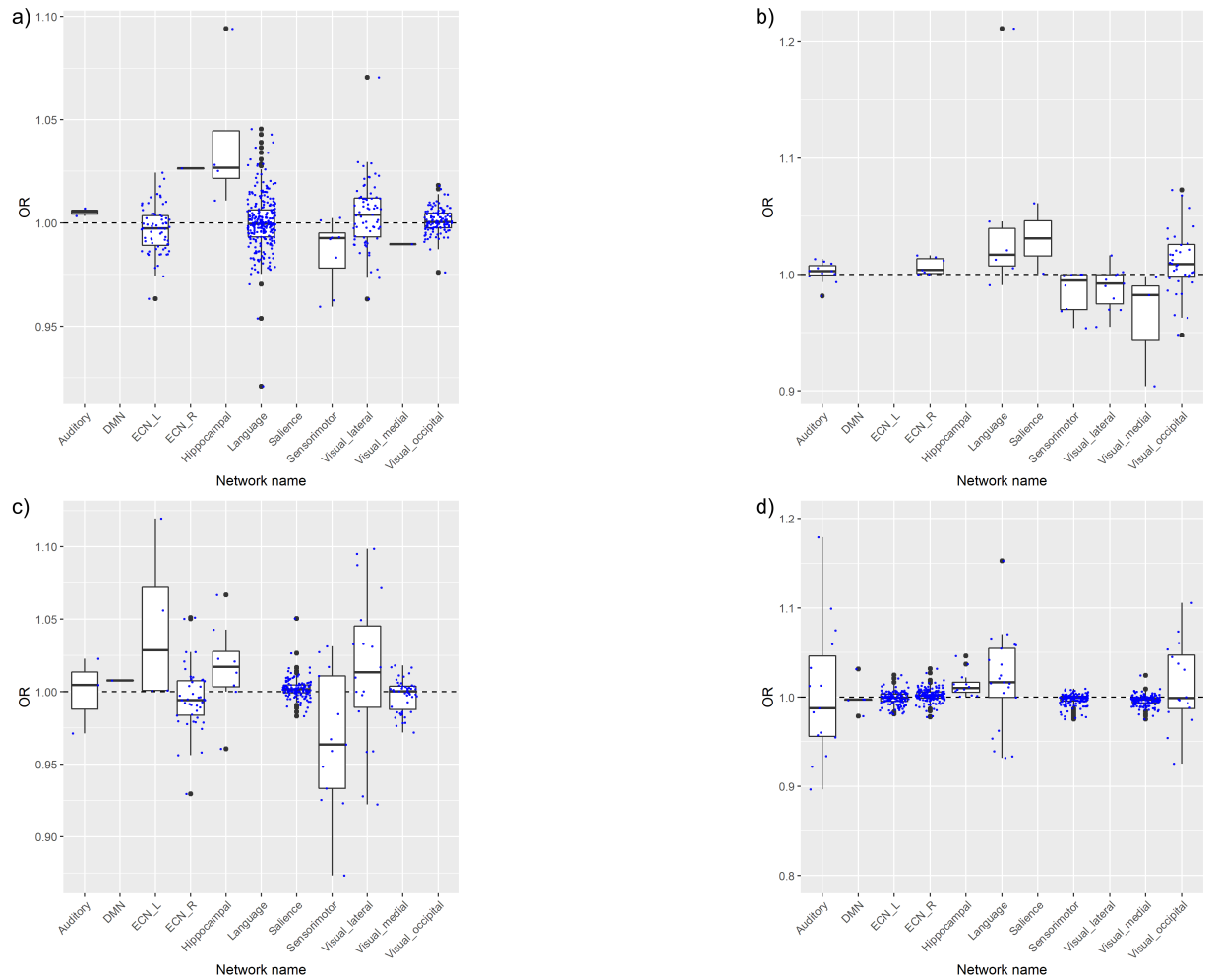


Figure 1: Box plots showing estimated coefficient values using an elastic net model fitted to different data sets and stratified by brain network. Blue points are the individual values and the black box and points show median, 25th and 75th percentile and whiskers to largest and smallest values. a) 3T b) 3T cross-over cohort c) 7T d) 3T quality cohort.

## Tables

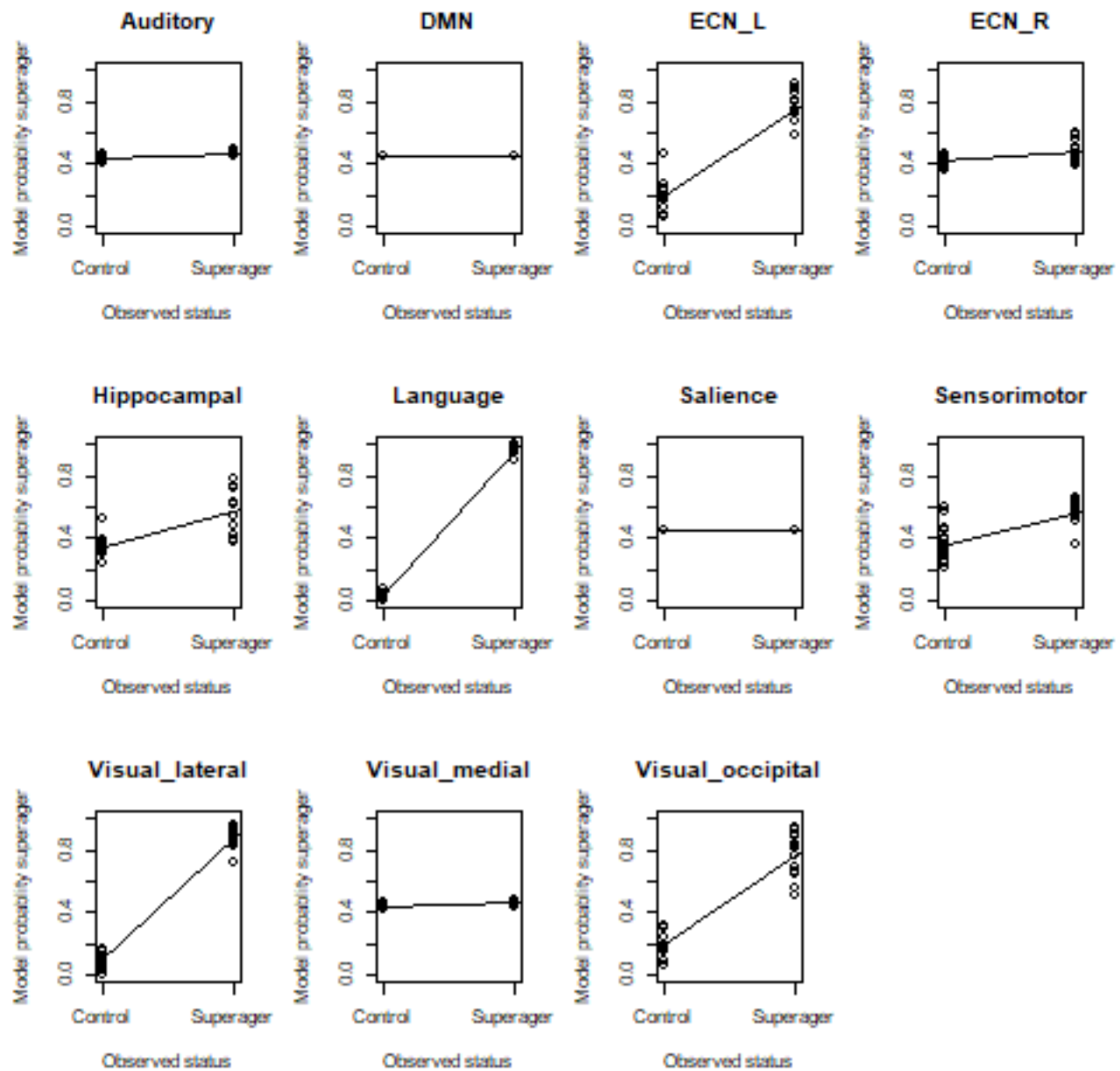


Figure 2: Scatterplot of model fits vs observed data and fitted regression for 3T.

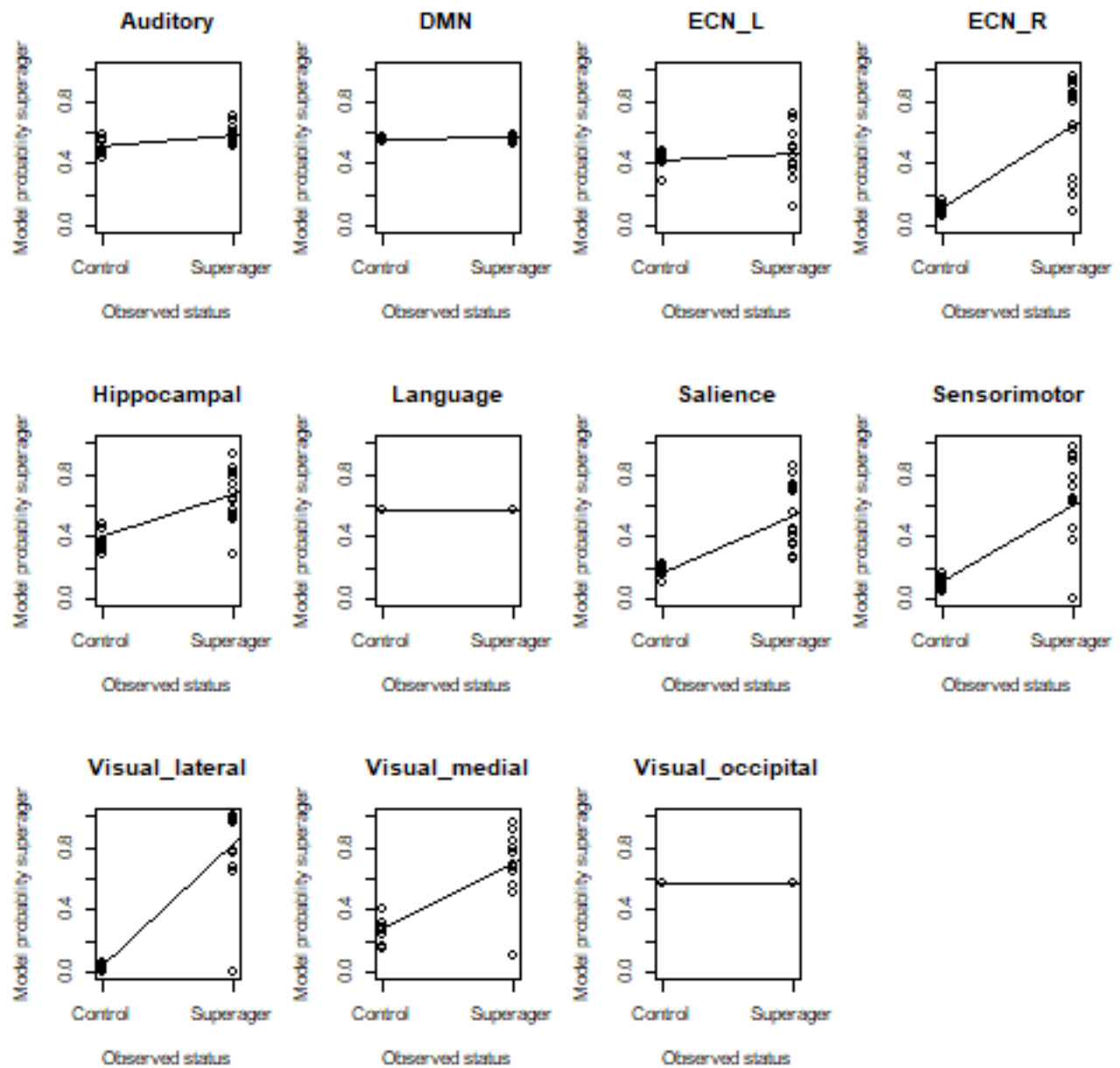


Figure 3: Scatterplot of model fits vs observed data and fitted regression for 7T.

Table 1: Summary table for 3T.

X	network_name	OR	L95	U95	min	max	count	prop
1	Auditory	1.005	1.003	1.007	1.003	1.007	2	1
2	ECN_L	0.997	0.977	1.019	0.963	1.024	67	1
3	ECN_R	1.026	1.026	1.026	1.026	1.026	1	1
4	Hippocampal	1.040	1.012	1.089	1.011	1.094	4	1
5	Language	1.000	0.978	1.028	0.921	1.046	271	1
6	Sensorimotor	0.986	0.960	1.002	0.960	1.002	8	1
7	Visual_lateral	1.004	0.975	1.029	0.963	1.070	67	1
8	Visual_medial	0.990	0.990	0.990	0.990	0.990	1	1
9	Visual_occipital	1.001	0.992	1.014	0.976	1.018	120	1

Table 2: Summary table for 7T.

X	network_name	OR	L95	U95	min	max	count	prop
1	Auditory	1.000	0.973	1.022	0.971	1.023	3	1
2	DMN	1.008	1.008	1.008	1.008	1.008	1	1
3	ECN_L	1.044	1.001	1.115	1.001	1.119	4	1
4	ECN_R	0.996	0.956	1.049	0.930	1.051	43	1
5	Hippocampal	1.016	0.968	1.063	0.961	1.067	8	1
6	Salience	1.002	0.990	1.016	0.983	1.050	127	1
7	Sensorimotor	0.967	0.888	1.030	0.873	1.031	13	1
8	Visual_lateral	1.015	0.925	1.097	0.922	1.099	18	1
9	Visual_medial	0.998	0.977	1.017	0.972	1.018	47	1

## Performance

How well do the model predict the data they were fit with?

The controls-superager classifications for each model and network.

Model fit statistics for each network.  $RMSE = 0$  and  $R^2 = 1$  are best.

Table 3: Predictions tables for 3T and 7T.

Network	RMSE_3T	Rsquare_3T	RMSE_7T	Rsquare_7T
Auditory	0.66		0.42	0.43
DMN	0.66		0.63	
ECN_L	0.00	1	0.63	0.18
ECN_R	0.55	0.2	0.42	0.49
Hippocampal	0.45	0.36	0.21	0.84
Language	0.00	1	0.63	
Salience	0.66		0.55	0.28
Sensorimotor	0.32	0.64	0.42	0.49
Visual_lateral	0.00	1	0.21	0.84
Visual_medial	0.66		0.21	0.84
Visual_occipital	0.00	1	0.63	

Table 4: Predictions tables for 3T quality and cross-over.

Network	RMSE_3Tqual	Rsquare_3Tqual	RMSE_3Tsame	Rsquare_3Tsame
Auditory	0.00	1	0.49	0.31
DMN	0.42	0.42	0.65	
ECN_L	0.21	0.84	0.65	
ECN_R	0.29	0.71	0.38	0.53
Hippocampal	0.36	0.59	0.65	
Language	0.00	1	0.22	0.82
Salience	0.69		0.58	0.1
Sensorimotor	0.00	1	0.22	0.82
Visual_lateral	0.69		0.00	1
Visual_medial	0.21	0.84	0.31	0.67
Visual_occipital	0.21	0.84	0.00	1