

Phase Locking Values (PLVs)

PLVs: Delta band

Family: beta (logit)
 Formula: PLV ~ Hemisphere * Modality * Motor_Region + (1 + Hemisphere * Modality * Motor_Region || ID)
 Data: Delta

AIC	BIC	logLik	deviance	df.resid
-5668.2	-5543.6	2859.1	-5718.2	1055

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	1.038e-01	3.222e-01	
	HemisphereR	2.008e-02	1.417e-01	0.00
	ModalityVisual	7.324e-02	2.706e-01	0.00 0.00
	Motor_RegionM1	5.862e-03	7.656e-02	0.00 0.00 0.00
	Motor_RegionvPMC	2.140e-02	1.463e-01	0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual	3.458e-02	1.860e-01	0.00 0.00 0.00 0.00 0.00
	HemisphereR:Motor_RegionM1	1.792e-03	4.233e-02	0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:Motor_RegionvPMC	6.301e-03	7.938e-02	0.00 0.00 0.00 0.00 0.00 0.00 0.00
	ModalityVisual:Motor_RegionM1	6.032e-10	2.456e-05	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	ModalityVisual:Motor_RegionvPMC	1.728e-02	1.315e-01	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual:Motor_RegionM1	4.803e-11	6.930e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual:Motor_RegionvPMC	3.450e-09	5.873e-05	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Number of obs: 1080, groups: ID, 90

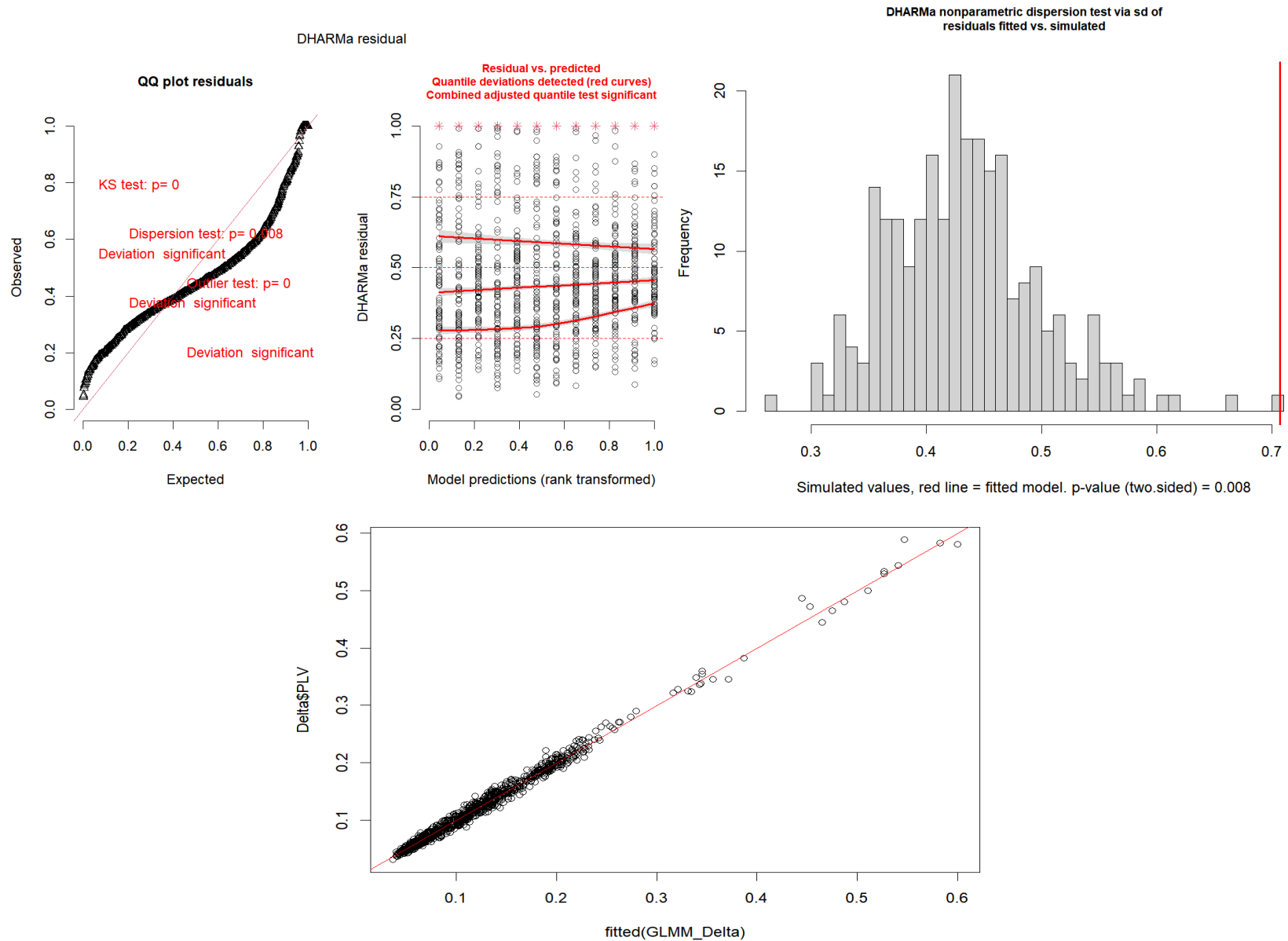
Precision parameter for beta family (ϕ): 1.15e+03

Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-2.040192	0.035341	-57.73	< 2e-16 ***
HemisphereR	0.046118	0.020248	2.28	0.02275 *
ModalityVisual	-0.570369	0.032575	-17.51	< 2e-16 ***
Motor_RegionM1	0.267727	0.015449	17.33	< 2e-16 ***
Motor_RegionvPMC	0.630969	0.019886	31.73	< 2e-16 ***
HemisphereR:ModalityVisual	-0.090956	0.029602	-3.07	0.00212 **
HemisphereR:Motor_RegionM1	-0.043726	0.019051	-2.30	0.02172 *
HemisphereR:Motor_RegionvPMC	0.024794	0.019437	1.28	0.20211
ModalityVisual:Motor_RegionM1	-0.199978	0.021350	-9.37	< 2e-16 ***
ModalityVisual:Motor_RegionvPMC	-0.521415	0.025251	-20.65	< 2e-16 ***
HemisphereR:ModalityVisual:Motor_RegionM1	0.044575	0.030312	1.47	0.14142
HemisphereR:ModalityVisual:Motor_RegionvPMC	-0.004526	0.029589	-0.15	0.87842

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PLVs: Delta band



PLVs: Theta band

Family: beta (logit)
 Formula: PLV ~ Hemisphere * Modality * Motor_Region + (1 + Hemisphere * Modality * Motor_Region || ID)
 Data: Theta

AIC	BIC	logLik	deviance	df.resid
-6246.2	-6121.6	3148.1	-6296.2	1055

Conditional model:

Groups Name	Variance	Std.Dev.	Corr
ID (Intercept)	2.045e-02	1.430e-01	
HemisphereR	1.509e-02	1.228e-01	0.00
ModalityVisual	4.147e-02	2.036e-01	0.00 0.00
Motor_RegionM1	2.714e-03	5.209e-02	0.00 0.00 0.00
Motor_RegionvPMC	1.093e-02	1.045e-01	0.00 0.00 0.00 0.00
HemisphereR:ModalityVisual	2.437e-02	1.561e-01	0.00 0.00 0.00 0.00 0.00
HemisphereR:Motor_RegionM1	2.140e-03	4.626e-02	0.00 0.00 0.00 0.00 0.00 0.00
HemisphereR:Motor_RegionvPMC	2.561e-03	5.060e-02	0.00 0.00 0.00 0.00 0.00 0.00 0.00
ModalityVisual:Motor_RegionM1	9.188e-11	9.585e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
ModalityVisual:Motor_RegionvPMC	9.130e-03	9.555e-02	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
HemisphereR:ModalityVisual:Motor_RegionM1	1.948e-10	1.396e-05	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
HemisphereR:ModalityVisual:Motor_RegionvPMC	9.105e-04	3.017e-02	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Number of obs: 1080, groups: ID, 90

Precision parameter for beta family (ϕ): 1.21e+03

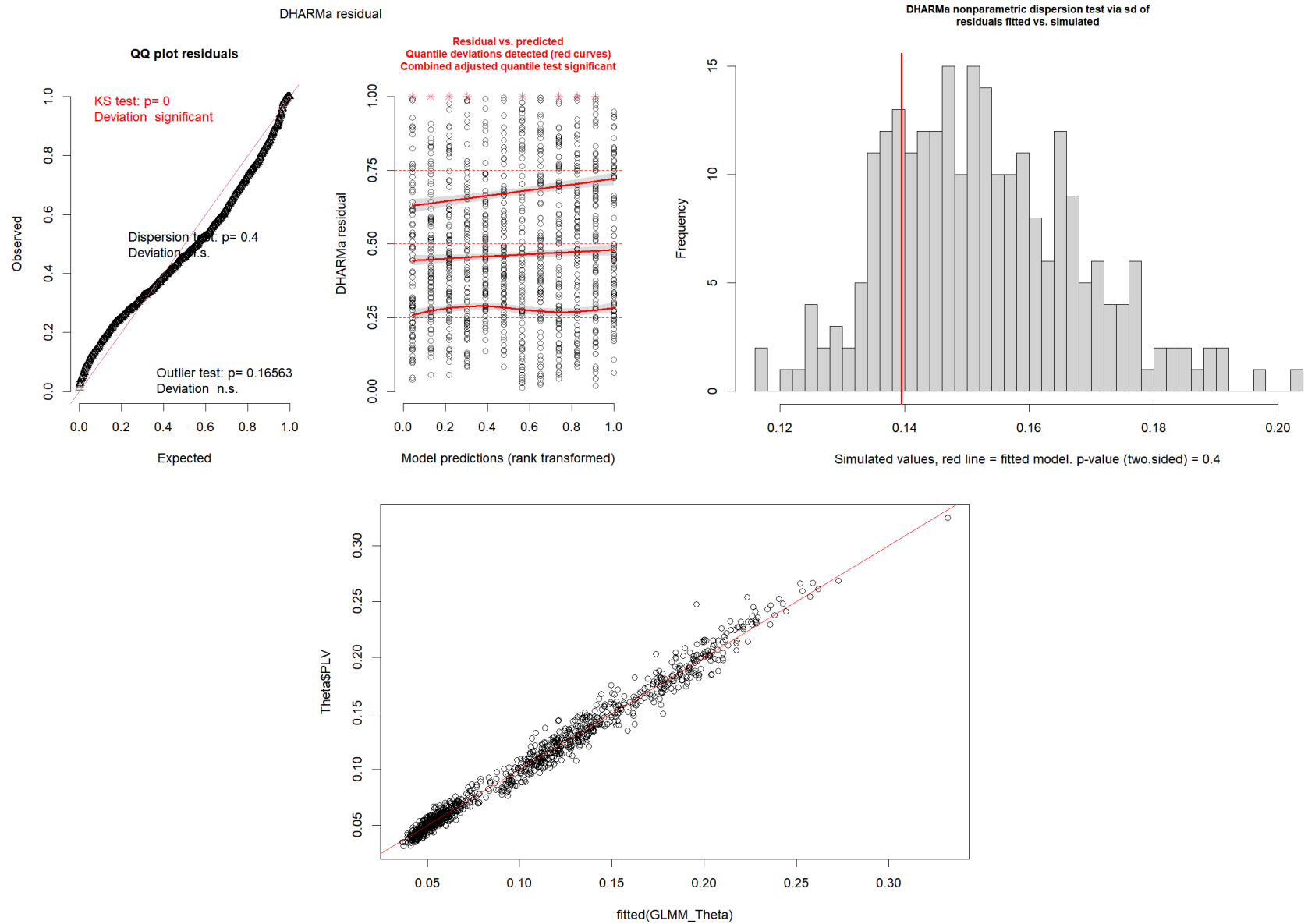
Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-2.12343	0.01798	-118.08	< 2e-16 ***
HemisphereR	0.07324	0.01883	3.89	0.000100 ***
ModalityVisual	-0.79190	0.02726	-29.05	< 2e-16 ***
Motor_RegionM1	0.27008	0.01430	18.88	< 2e-16 ***
Motor_RegionvPMC	0.66373	0.01667	39.82	< 2e-16 ***
HemisphereR:ModalityVisual	-0.05358	0.02875	-1.86	0.062388 .
HemisphereR:Motor_RegionM1	-0.06760	0.01916	-3.53	0.000417 ***
HemisphereR:Motor_RegionvPMC	0.01473	0.01824	0.81	0.419430
ModalityVisual:Motor_RegionM1	-0.18118	0.02297	-7.89	3.1e-15 ***
ModalityVisual:Motor_RegionvPMC	-0.58939	0.02487	-23.70	< 2e-16 ***
HemisphereR:ModalityVisual:Motor_RegionM1	0.06625	0.03236	2.05	0.040624 *
HemisphereR:ModalityVisual:Motor_RegionvPMC	0.02008	0.03199	0.63	0.530240

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PLVs:

Theta band



PLVs: Alpha band

Family: beta (logit)
 Formula: PLV ~ Hemisphere * Modality * Motor_Region + (1 + Hemisphere * Modality * Motor_Region || ID)
 Data: Alpha

AIC	BIC	logLik	deviance	df.resid
-5423.1	-5298.4	2736.5	-5473.1	1055

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	1.035e-01	3.217e-01	
	HemisphereR	4.169e-02	2.042e-01	0.00
	ModalityVisual	6.793e-02	2.606e-01	0.00 0.00
	Motor_RegionM1	4.330e-03	6.580e-02	0.00 0.00 0.00
	Motor_RegionvPMC	3.857e-02	1.964e-01	0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual	3.990e-02	1.997e-01	0.00 0.00 0.00 0.00 0.00
	HemisphereR:Motor_RegionM1	4.741e-03	6.886e-02	0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:Motor_RegionvPMC	1.577e-02	1.256e-01	0.00 0.00 0.00 0.00 0.00 0.00 0.00
	ModalityVisual:Motor_RegionM1	1.370e-10	1.171e-05	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	ModalityVisual:Motor_RegionvPMC	2.272e-02	1.507e-01	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual:Motor_RegionM1	1.734e-10	1.317e-05	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual:Motor_RegionvPMC	7.168e-10	2.677e-05	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Number of obs: 1080, groups: ID, 90

Precision parameter for beta family (ϕ): 1.1e+03

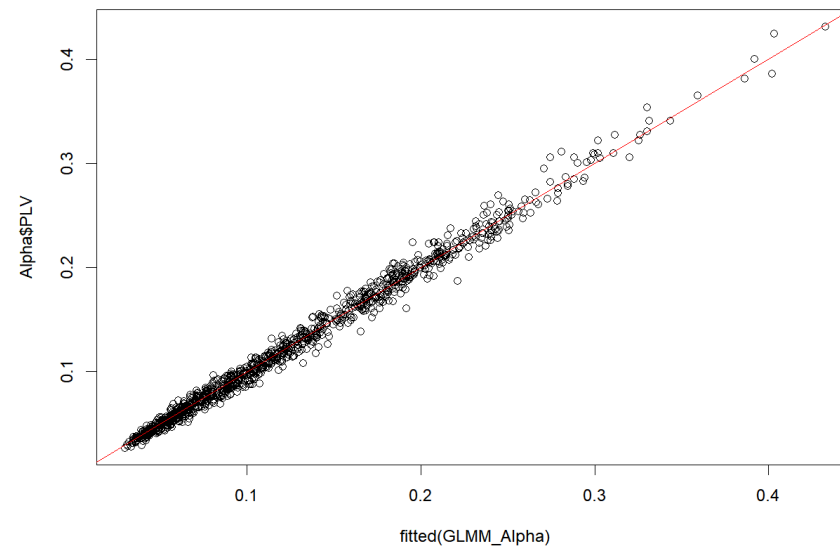
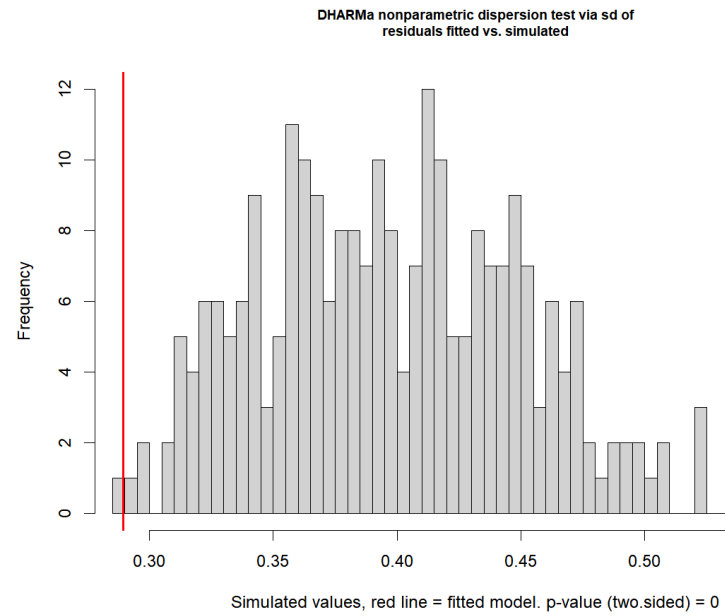
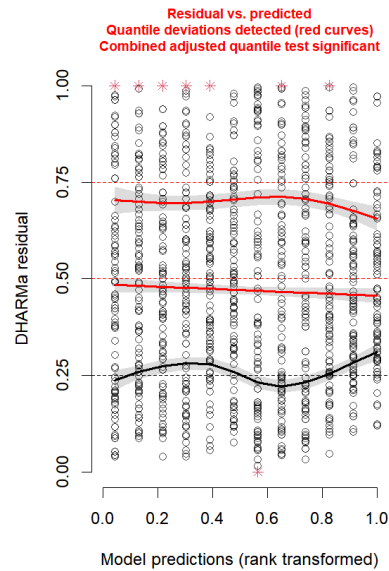
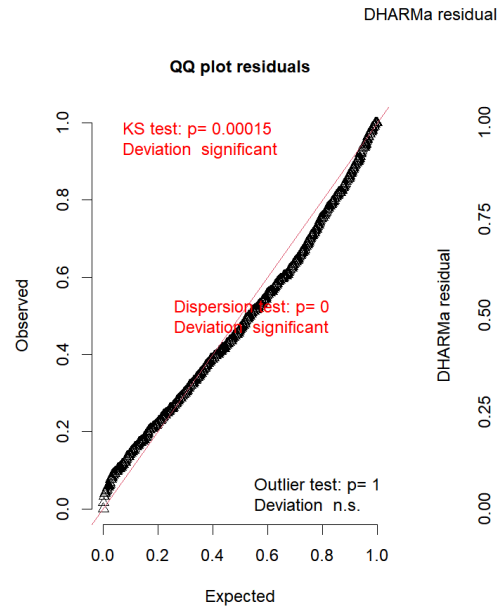
Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-1.924936	0.035232	-54.64	< 2e-16 ***
HemisphereR	0.111626	0.025259	4.42	9.90e-06 ***
ModalityVisual	-0.838023	0.031992	-26.20	< 2e-16 ***
Motor_RegionM1	0.304339	0.014568	20.89	< 2e-16 ***
Motor_RegionvPMC	0.600992	0.024116	24.92	< 2e-16 ***
HemisphereR:ModalityVisual	-0.010518	0.030929	-0.34	0.73380
HemisphereR:Motor_RegionM1	-0.056727	0.019250	-2.95	0.00321 **
HemisphereR:Motor_RegionvPMC	-0.009608	0.021668	-0.44	0.65746
ModalityVisual:Motor_RegionM1	-0.141171	0.022046	-6.40	1.52e-10 ***
ModalityVisual:Motor_RegionvPMC	-0.493838	0.027293	-18.09	< 2e-16 ***
HemisphereR:ModalityVisual:Motor_RegionM1	0.082395	0.030548	2.70	0.00699 **
HemisphereR:ModalityVisual:Motor_RegionvPMC	0.050269	0.030464	1.65	0.09893 .

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PLVs:

Alpha band



PLVs: Beta band

Family: beta (logit)
 Formula: PLV ~ Hemisphere * Modality * Motor_Region + (1 + Hemisphere * Modality * Motor_Region || ID)
 Data: Beta

AIC	BIC	logLik	deviance	df.resid
-6803.2	-6678.6	3426.6	-6853.2	1055

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	4.168e-02	2.042e-01	
	HemisphereR	1.504e-02	1.226e-01	0.00
	ModalityVisual	3.154e-02	1.776e-01	0.00 0.00
	Motor_RegionM1	2.465e-03	4.965e-02	0.00 0.00 0.00
	Motor_RegionvPMC	2.773e-02	1.665e-01	0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual	3.003e-02	1.733e-01	0.00 0.00 0.00 0.00 0.00
	HemisphereR:Motor_RegionM1	1.945e-09	4.410e-05	0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:Motor_RegionvPMC	9.221e-03	9.603e-02	0.00 0.00 0.00 0.00 0.00 0.00 0.00
	ModalityVisual:Motor_RegionM1	8.900e-12	2.983e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	ModalityVisual:Motor_RegionvPMC	9.903e-03	9.952e-02	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual:Motor_RegionM1	1.298e-11	3.603e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual:Motor_RegionvPMC	2.204e-11	4.695e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Number of obs: 1080, groups: ID, 90

Precision parameter for beta family (ϕ): 1.64e+03

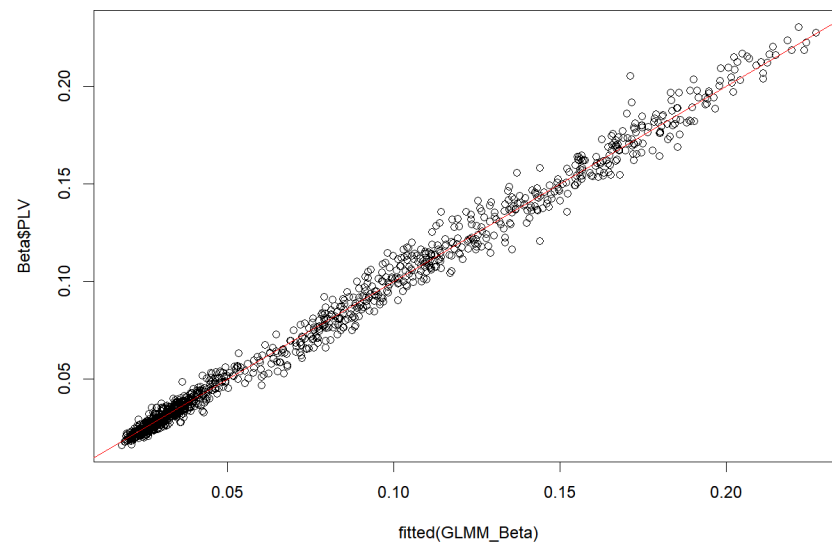
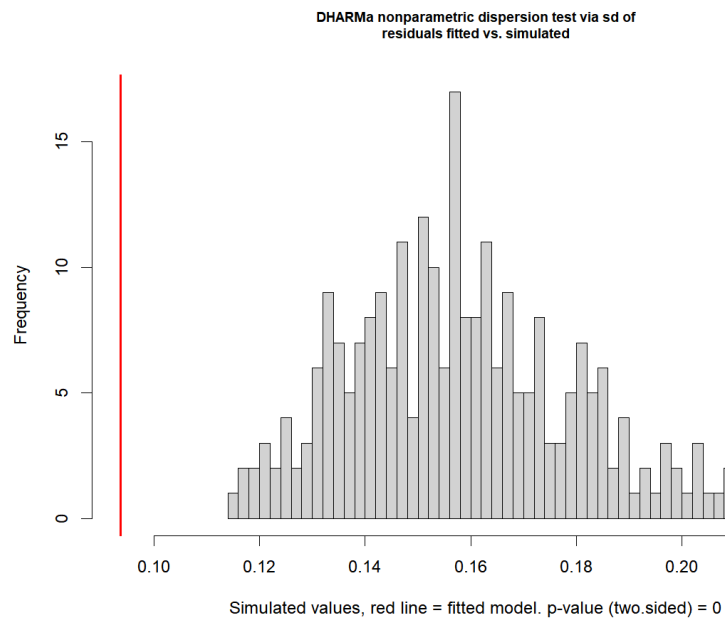
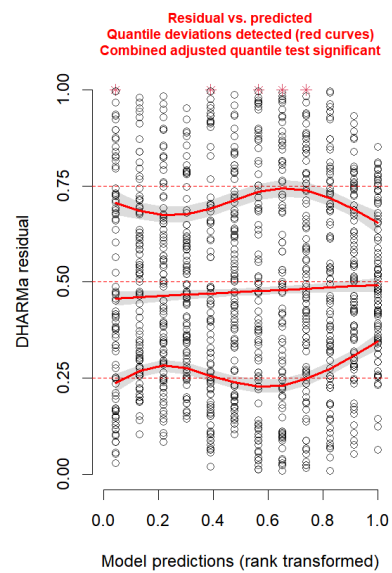
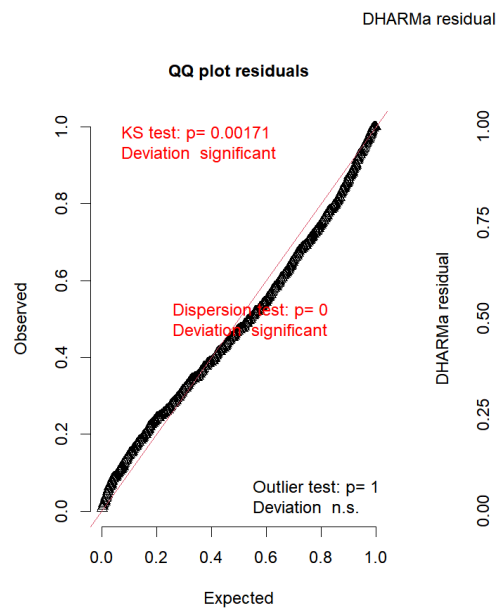
Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-2.422892	0.023526	-102.99	< 2e-16 ***
HemisphereR	0.120002	0.018396	6.52	6.89e-11 ***
ModalityVisual	-1.125972	0.026175	-43.02	< 2e-16 ***
Motor_RegionM1	0.372396	0.013571	27.44	< 2e-16 ***
Motor_RegionvPMC	0.786691	0.021173	37.15	< 2e-16 ***
HemisphereR:ModalityVisual	-0.036192	0.031212	-1.16	0.24622
HemisphereR:Motor_RegionM1	-0.051471	0.017338	-2.97	0.00299 **
HemisphereR:Motor_RegionvPMC	-0.007780	0.019233	-0.40	0.68584
ModalityVisual:Motor_RegionM1	-0.152037	0.024317	-6.25	4.05e-10 ***
ModalityVisual:Motor_RegionvPMC	-0.715439	0.026885	-26.61	< 2e-16 ***
HemisphereR:ModalityVisual:Motor_RegionM1	0.056554	0.033733	1.68	0.09364 .
HemisphereR:ModalityVisual:Motor_RegionvPMC	0.007261	0.034252	0.21	0.83212

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PLVs:

Beta band



PLVs: Gamma1 band

Family: beta (logit)
 Formula: PLV ~ Hemisphere * Modality * Motor_Region + (1 + Hemisphere * Modality * Motor_Region || ID)
 Data: Gamma1

AIC	BIC	logLik	deviance	df.resid
-7368.8	-7244.2	3709.4	-7418.8	1055

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	3.285e-02	1.812e-01	
	HemisphereR	1.548e-02	1.244e-01	0.00
	ModalityVisual	3.167e-02	1.780e-01	0.00 0.00
	Motor_RegionM1	3.701e-03	6.084e-02	0.00 0.00 0.00
	Motor_RegionvPMC	1.311e-02	1.145e-01	0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual	1.286e-02	1.134e-01	0.00 0.00 0.00 0.00 0.00
	HemisphereR:Motor_RegionM1	2.096e-10	1.448e-05	0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:Motor_RegionvPMC	1.051e-02	1.025e-01	0.00 0.00 0.00 0.00 0.00 0.00 0.00
	ModalityVisual:Motor_RegionM1	6.441e-13	8.026e-07	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	ModalityVisual:Motor_RegionvPMC	1.151e-08	1.073e-04	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual:Motor_RegionM1	7.876e-13	8.875e-07	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual:Motor_RegionvPMC	3.863e-11	6.215e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Number of obs: 1080, groups: ID, 90

Precision parameter for beta family (ϕ): 2.06e+03

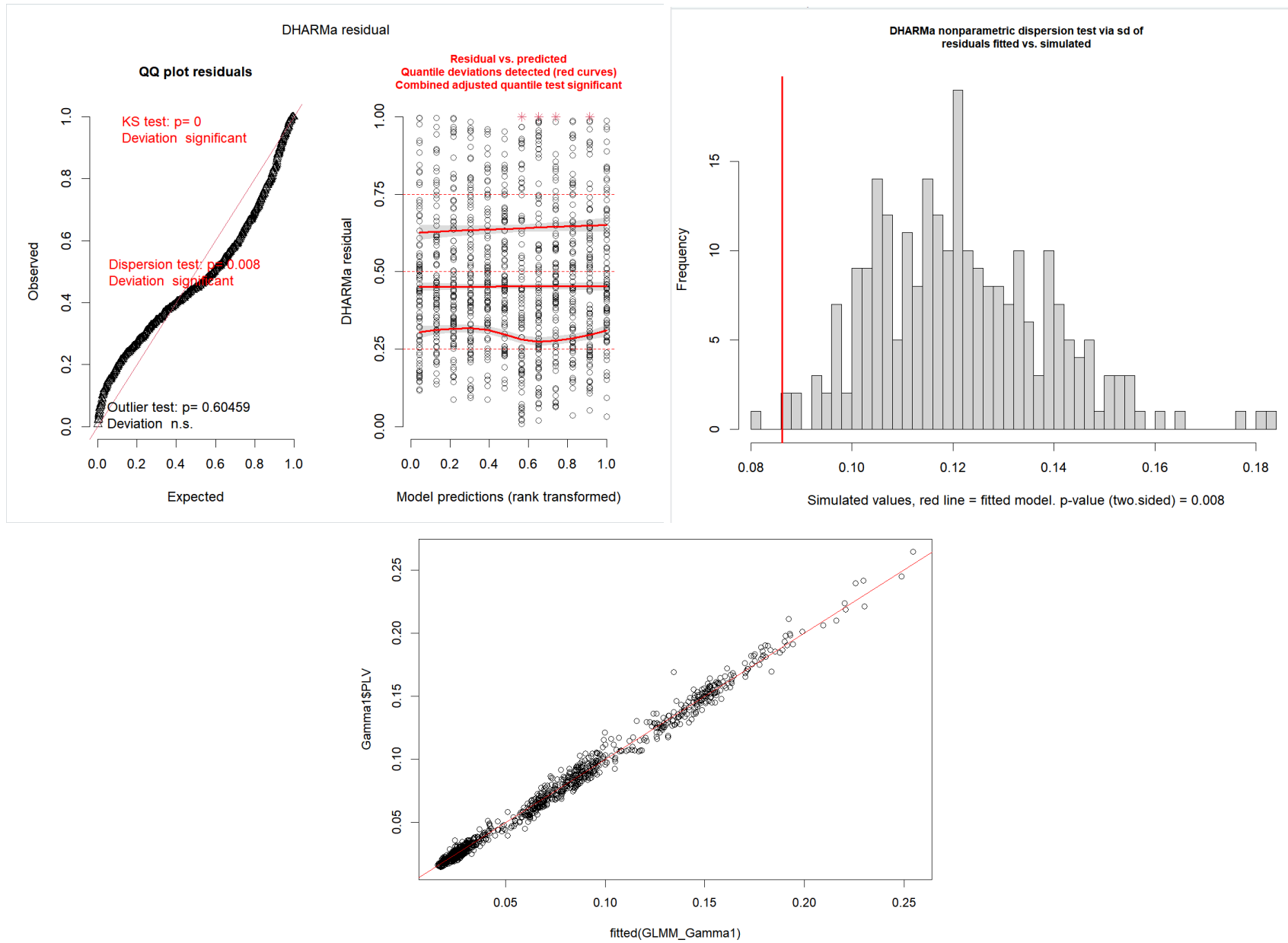
Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-2.63652	0.02123	-124.18	< 2e-16 ***
HemisphereR	0.09090	0.01835	4.95	7.27e-07 ***
ModalityVisual	-1.18396	0.02625	-45.10	< 2e-16 ***
Motor_RegionM1	0.31619	0.01388	22.79	< 2e-16 ***
Motor_RegionvPMC	0.86154	0.01658	51.97	< 2e-16 ***
HemisphereR:ModalityVisual	-0.05174	0.02830	-1.83	0.06753 .
HemisphereR:Motor_RegionM1	-0.04825	0.01713	-2.82	0.00485 **
HemisphereR:Motor_RegionvPMC	0.04242	0.01910	2.22	0.02635 *
ModalityVisual:Motor_RegionM1	-0.06337	0.02445	-2.59	0.00954 **
ModalityVisual:Motor_RegionvPMC	-0.61837	0.02406	-25.71	< 2e-16 ***
HemisphereR:ModalityVisual:Motor_RegionM1	0.04795	0.03423	1.40	0.16122
HemisphereR:ModalityVisual:Motor_RegionvPMC	-0.03832	0.03364	-1.14	0.25461

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PLVs:

Gamma1 band



PLVs: Gamma2 band

Family: beta (logit)
 Formula: PLV ~ Hemisphere * Modality * Motor_Region + (1 + Hemisphere * Modality * Motor_Region || ID)
 Data: Gamma2

AIC	BIC	logLik	deviance	df.resid
-7118.3	-6993.7	3584.2	-7168.3	1055

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	3.502e-02	1.871e-01	
	HemisphereR	1.448e-02	1.203e-01	0.00
	ModalityVisual	2.925e-02	1.710e-01	0.00 0.00
	Motor_RegionM1	2.926e-03	5.410e-02	0.00 0.00 0.00
	Motor_RegionvPMC	1.186e-02	1.089e-01	0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual	1.931e-02	1.389e-01	0.00 0.00 0.00 0.00 0.00
	HemisphereR:Motor_RegionM1	5.257e-09	7.250e-05	0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:Motor_RegionvPMC	8.932e-03	9.451e-02	0.00 0.00 0.00 0.00 0.00 0.00 0.00
	ModalityVisual:Motor_RegionM1	1.012e-12	1.006e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	ModalityVisual:Motor_RegionvPMC	7.930e-03	8.905e-02	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual:Motor_RegionM1	6.333e-13	7.958e-07	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	HemisphereR:ModalityVisual:Motor_RegionvPMC	4.295e-11	6.553e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Number of obs: 1080, groups: ID, 90

Precision parameter for beta family (ϕ): 2.27e+03

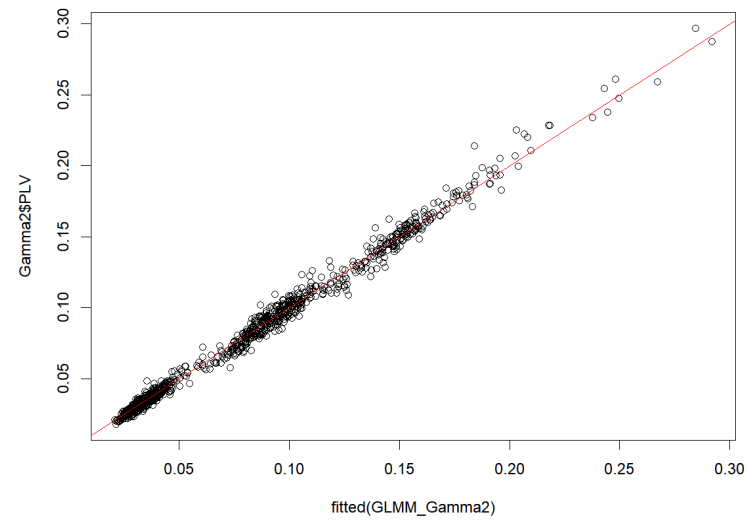
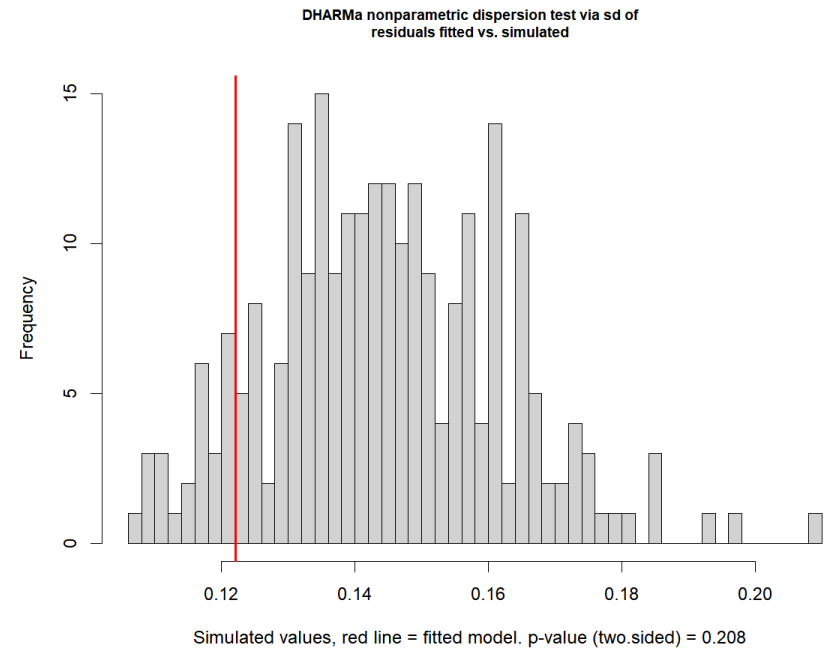
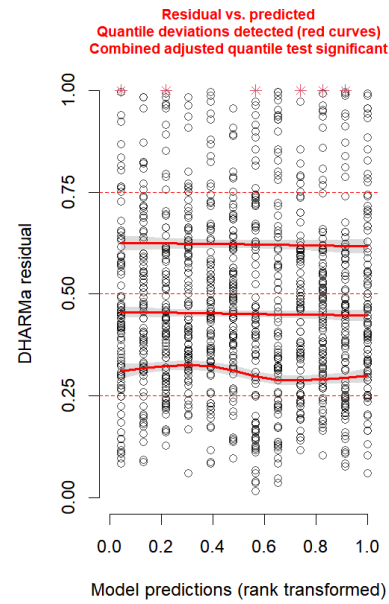
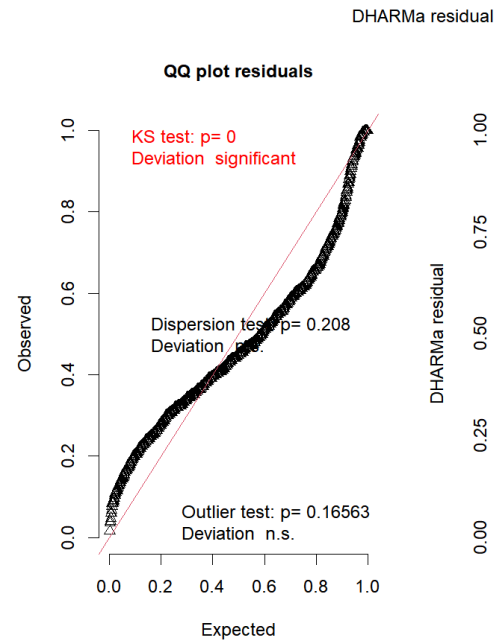
Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-2.3887647	0.0212750	-112.28	< 2e-16 ***
HemisphereR	0.0598006	0.0168581	3.55	0.000389 ***
ModalityVisual	-1.1622566	0.0237861	-48.86	< 2e-16 ***
Motor_RegionM1	0.1979461	0.0122308	16.18	< 2e-16 ***
Motor_RegionvPMC	0.6542487	0.0152802	42.82	< 2e-16 ***
HemisphereR:ModalityVisual	0.0241971	0.0260646	0.93	0.353225
HemisphereR:Motor_RegionM1	-0.0095284	0.0151100	-0.63	0.528300
HemisphereR:Motor_RegionvPMC	0.0673075	0.0172116	3.91	9.21e-05 ***
ModalityVisual:Motor_RegionM1	0.0997261	0.0206722	4.82	1.41e-06 ***
ModalityVisual:Motor_RegionvPMC	-0.4662703	0.0227204	-20.52	< 2e-16 ***
HemisphereR:ModalityVisual:Motor_RegionM1	-0.0006176	0.0287670	-0.02	0.982873
HemisphereR:ModalityVisual:Motor_RegionvPMC	-0.0746065	0.0287244	-2.60	0.009395 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PLVs:

Gamma2 band



Phase Locking Value (PLV) differences

PLV_Differences

Family: gaussian (identity)
 Formula: Difference ~ Band * Motor_Region + (1 + Band * Motor_Region || ID)
 Data: Effect_Sizes_Both

AIC	BIC	logLik	deviance	df.resid
-8345.5	-8146.1	4209.7	-8419.5	1583

Conditional model:

Groups Name	Variance	Std.Dev.	Corr
ID (Intercept)	7.112e-04	2.667e-02	
BandBeta	5.652e-04	2.377e-02	0.00
BandDelta	8.701e-04	2.950e-02	0.00 0.00
BandGamma1	8.849e-04	2.975e-02	0.00 0.00 0.00
BandGamma2	9.524e-04	3.086e-02	0.00 0.00 0.00 0.00
BandTheta	6.407e-04	2.531e-02	0.00 0.00 0.00 0.00 0.00
Motor_RegionM1	4.226e-05	6.500e-03	0.00 0.00 0.00 0.00 0.00 0.00
Motor_RegionvPMC	2.658e-04	1.630e-02	0.00 0.00 0.00 0.00 0.00 0.00 0.00
BandBeta:Motor_RegionM1	7.029e-11	8.384e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
BandDelta:Motor_RegionM1	4.156e-11	6.447e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
BandGamma1:Motor_RegionM1	2.944e-11	5.426e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
BandGamma2:Motor_RegionM1	3.364e-11	5.800e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
BandTheta:Motor_RegionM1	8.045e-12	2.836e-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
BandBeta:Motor_RegionvPMC	4.547e-10	2.132e-05	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
BandDelta:Motor_RegionvPMC	1.446e-04	1.202e-02	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
BandGamma1:Motor_RegionvPMC	1.441e-09	3.796e-05	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
BandGamma2:Motor_RegionvPMC	9.722e-05	9.860e-03	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
BandTheta:Motor_RegionvPMC	2.579e-05	5.078e-03	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00			
Residual	7.757e-05	8.808e-03	

PLV_Differences

Number of obs: 1620, groups: ID, 90

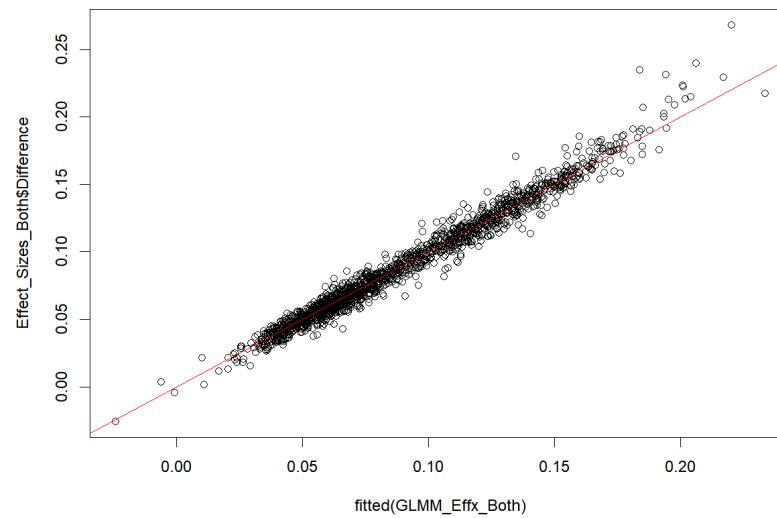
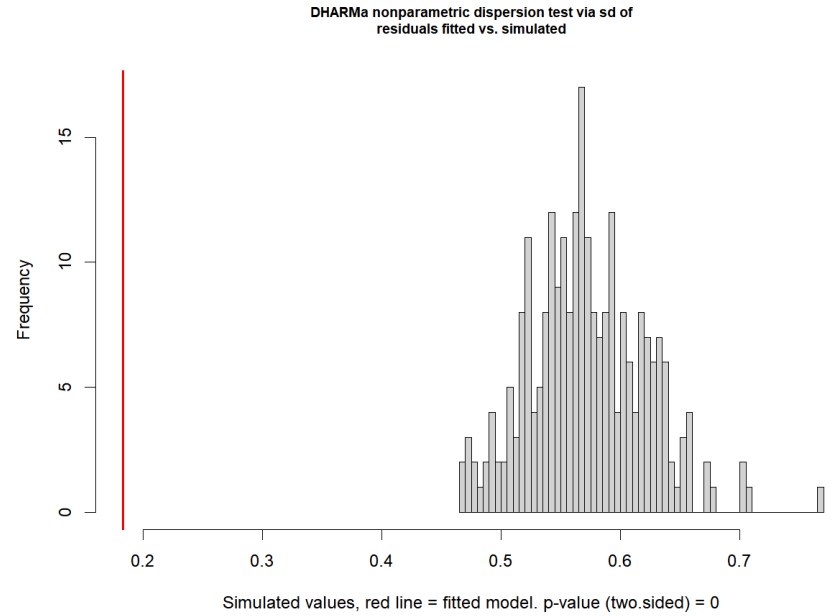
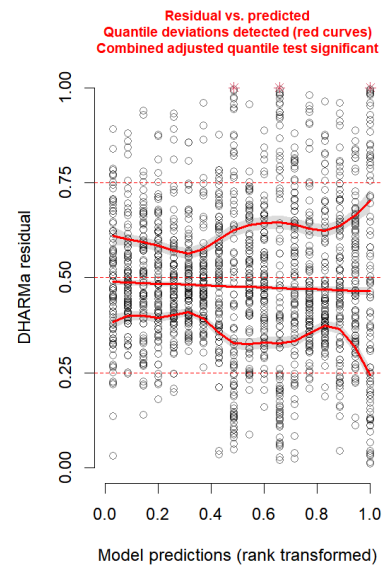
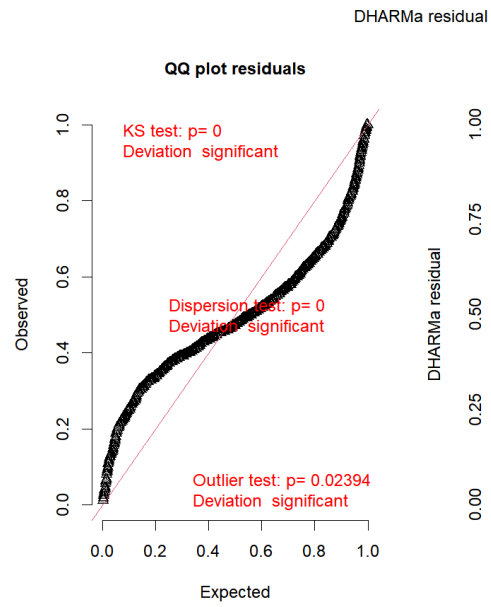
Dispersion estimate for gaussian family (σ^2): **7.76e-05**

Conditional model:

	Estimate	Std. Error	z	value	Pr(> z)
(Intercept)	7.231e-02	2.961e-03	24.43	< 2e-16	***
BandBeta	-1.471e-02	2.829e-03	-5.20	2.01e-07	***
BandDelta	-2.484e-02	3.375e-03	-7.36	1.85e-13	***
BandGamma1	-2.368e-02	3.399e-03	-6.97	3.24e-12	***
BandGamma2	-1.422e-02	3.508e-03	-4.05	5.07e-05	***
BandTheta	-1.434e-02	2.974e-03	-4.82	1.42e-06	***
Motor_RegionM1	2.358e-02	1.481e-03	15.92	< 2e-16	***
Motor_RegionvPMC	7.577e-02	2.163e-03	35.04	< 2e-16	***
BandBeta:Motor_RegionM1	7.109e-04	1.857e-03	0.38	0.701821	
BandDelta:Motor_RegionM1	-6.125e-05	1.857e-03	-0.03	0.973687	
BandGamma1:Motor_RegionM1	-8.386e-03	1.857e-03	-4.52	6.30e-06	***
BandGamma2:Motor_RegionM1	-1.679e-02	1.857e-03	-9.04	< 2e-16	***
BandTheta:Motor_RegionM1	-2.670e-03	1.857e-03	-1.44	0.150410	
BandBeta:Motor_RegionvPMC	6.709e-03	1.857e-03	3.61	0.000303	***
BandDelta:Motor_RegionvPMC	-4.414e-05	2.248e-03	-0.02	0.984335	
BandGamma1:Motor_RegionvPMC	2.206e-03	1.857e-03	1.19	0.234770	
BandGamma2:Motor_RegionvPMC	-9.166e-03	2.128e-03	-4.31	1.65e-05	***
BandTheta:Motor_RegionvPMC	4.438e-03	1.932e-03	2.30	0.021629	*

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PLV_Differences



Phase Transfer Entropy (PTE) values

PTEs: Delta band left

```
Family:      Gamma ( inverse )
Formula:     PTE ~ Direction * Motor_Region + (1 + Direction * Motor_Region || ID)
Data:        Delta_PTE_Left
```

AIC	BIC	logLik	deviance	df.resid
-2136.9	-2081.2	1081.5	-2162.9	527

Random effects:

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	8.451e-03	0.091929	
	DirectionS2M	1.099e-03	0.033152	0.00
	Motor_RegionM1	7.668e-05	0.008757	0.00 0.00
	Motor_RegionvPMC	1.501e-04	0.012253	0.00 0.00 0.00
	DirectionS2M:Motor_RegionM1	7.098e-04	0.026642	0.00 0.00 0.00 0.00
	DirectionS2M:Motor_RegionvPMC	5.577e-04	0.023615	0.00 0.00 0.00 0.00 0.00

Number of obs: 540, groups: ID, 90

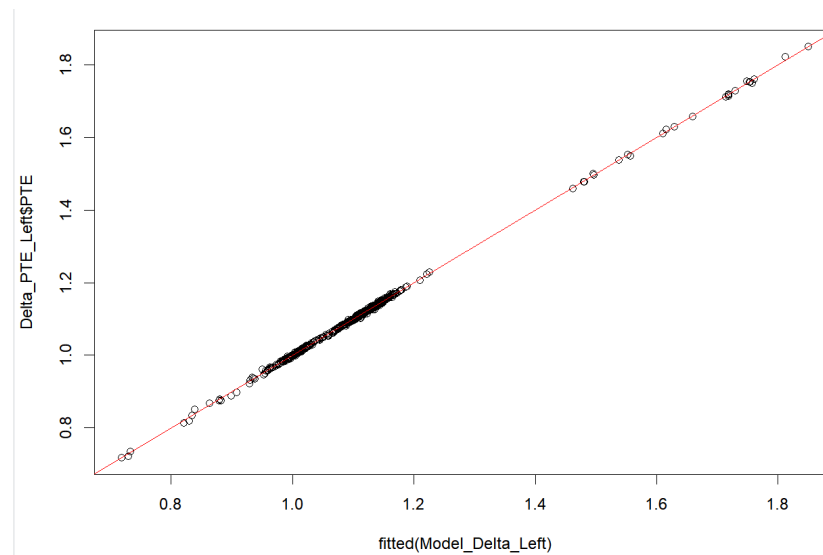
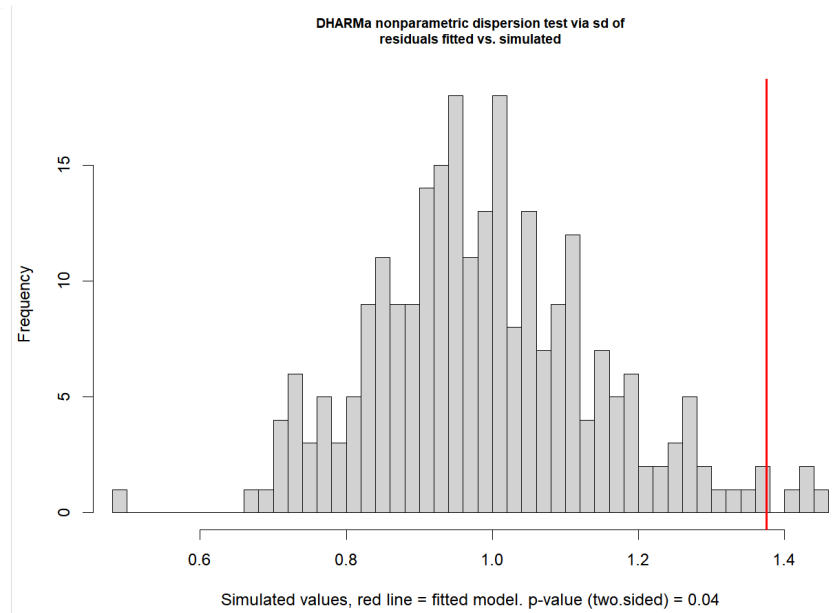
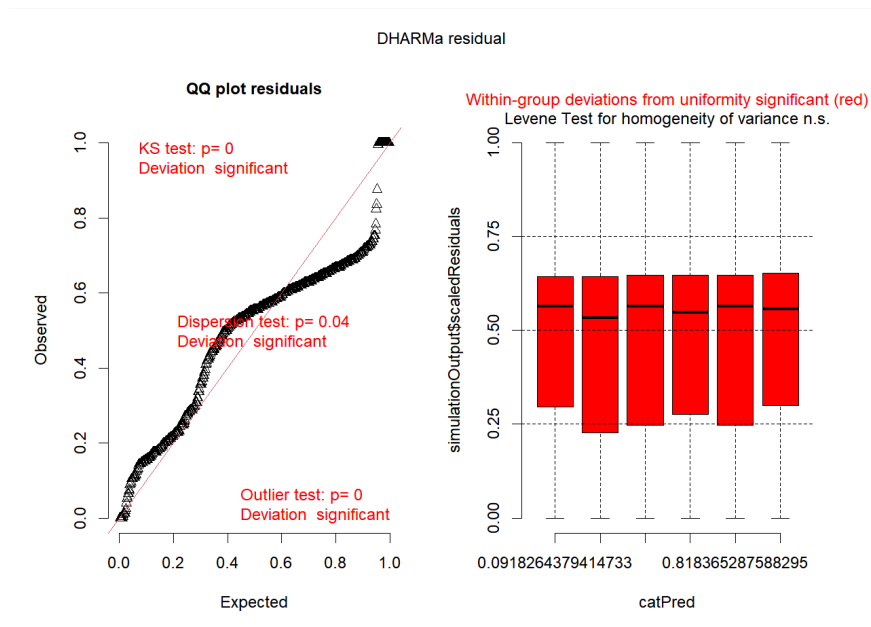
Dispersion estimate for Gamma family (σ^2): 3.96e-05

Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	0.9140070	0.0097091	94.14	< 2e-16 ***
DirectionS2M	-0.0016261	0.0035984	-0.45	0.6513
Motor_RegionM1	0.0030202	0.0012596	2.40	0.0165 *
Motor_RegionvPMC	0.0062908	0.0015509	4.06	4.99e-05 ***
DirectionS2M:Motor_RegionM1	-0.0005662	0.0030593	-0.19	0.8532
DirectionS2M:Motor_RegionvPMC	0.0020110	0.0027703	0.73	0.4679

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PTEs: Delta band left



PTEs: Delta band right

Family: Gamma (inverse)
Formula: PTE ~ Direction * Motor_Region + (1 + Direction * Motor_Region || ID)
Data: Delta_PTE_Right

AIC	BIC	logLik	deviance	df.resid
-2024.2	-1968.4	1025.1	-2050.2	527

Random effects:

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	1.006e-02	0.100284	
	DirectionS2M	7.978e-04	0.028245	0.00
	Motor_RegionM1	5.874e-05	0.007665	0.00 0.00
	Motor_RegionvPMC	5.020e-04	0.022406	0.00 0.00 0.00
	DirectionS2M:Motor_RegionM1	5.708e-04	0.023891	0.00 0.00 0.00 0.00
	DirectionS2M:Motor_RegionvPMC	3.054e-04	0.017476	0.00 0.00 0.00 0.00 0.00

Number of obs: 540, groups: ID, 90

Dispersion estimate for Gamma family (σ^2): 9.18e-05

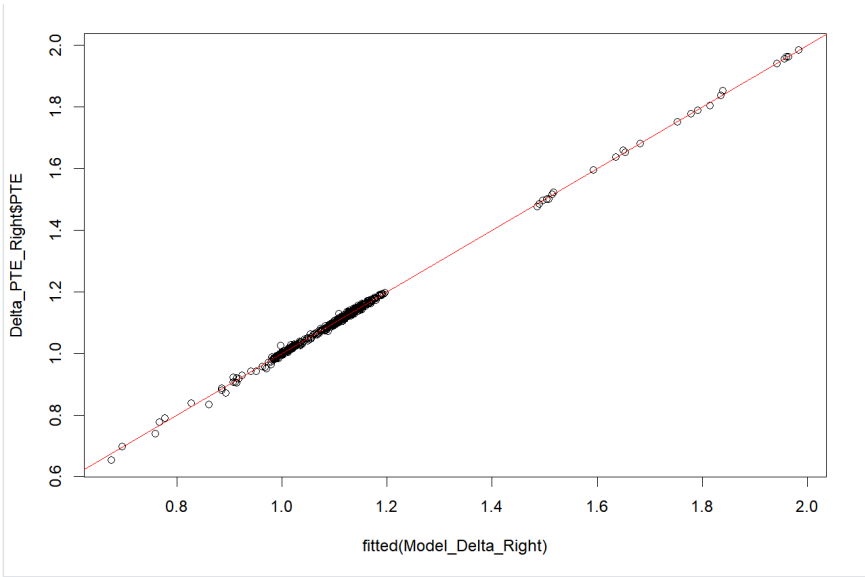
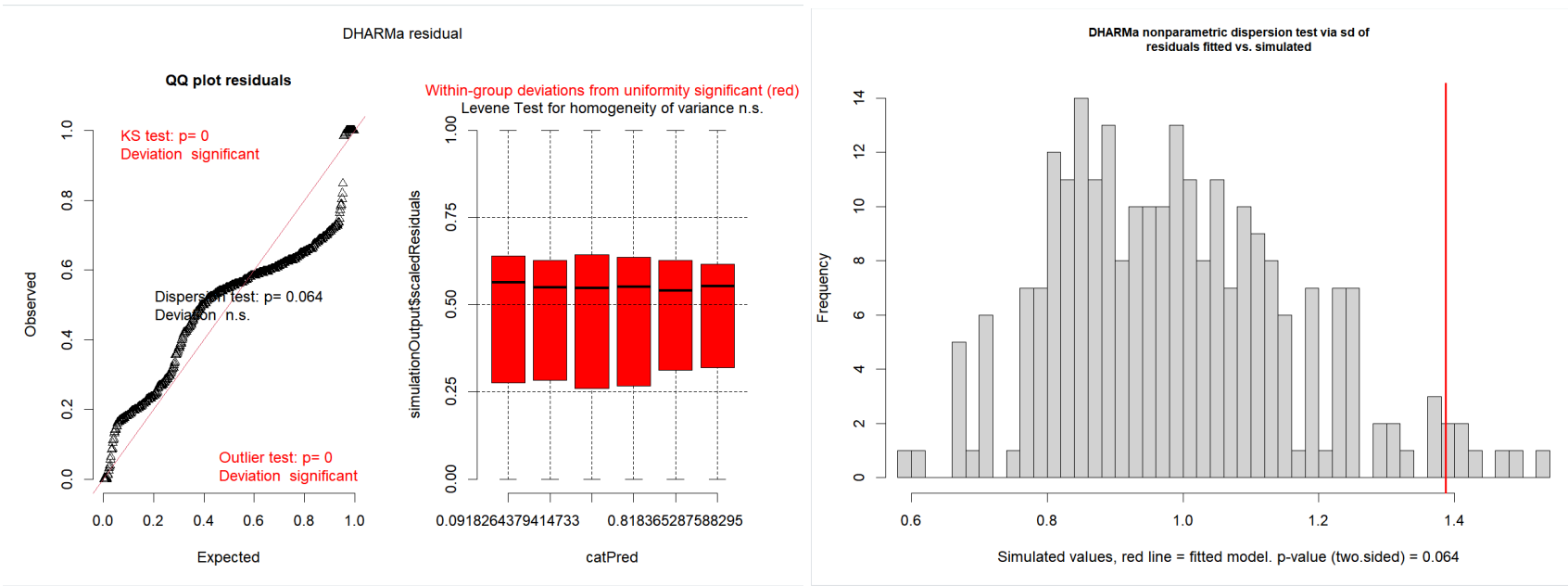
Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	0.9119661	0.0106105	85.95	< 2e-16 ***
DirectionS2M	-0.0036477	0.0032464	-1.12	0.26117
Motor_RegionM1	0.0014492	0.0015197	0.95	0.34029
Motor_RegionvPMC	0.0084983	0.0026981	3.15	0.00163 **
DirectionS2M:Motor_RegionM1	-0.0008314	0.0031100	-0.27	0.78920
DirectionS2M:Motor_RegionvPMC	0.0015858	0.0026087	0.61	0.54328

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PTEs:

Delta band right



PTEs: Theta band left

Family: Gamma (inverse)
Formula: PTE ~ Direction * Motor_Region + (1 + Direction * Motor_Region || ID)
Data: Theta_PTE_Left

AIC	BIC	logLik	deviance	df.resid
-3075.5	-3019.7	1550.7	-3101.5	527

Random effects:

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	0.0498875	0.22336	
	DirectionS2M	0.0042039	0.06484	0.00
	Motor_RegionM1	0.0008469	0.02910	0.00 0.00
	Motor_RegionvPMC	0.0008515	0.02918	0.00 0.00 0.00
	DirectionS2M:Motor_RegionM1	0.0028384	0.05328	0.00 0.00 0.00 0.00
	DirectionS2M:Motor_RegionvPMC	0.0026764	0.05173	0.00 0.00 0.00 0.00 0.00

Number of obs: 540, groups: ID, 90

Dispersion estimate for Gamma family (σ^2): **4.62e-05**

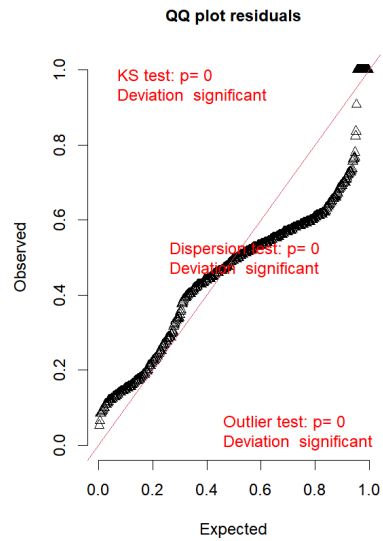
Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	2.170116	0.023595	91.97	< 2e-16 ***
DirectionS2M	0.019884	0.007184	2.77	0.00564 **
Motor_RegionM1	-0.007698	0.003771	-2.04	0.04119 *
Motor_RegionvPMC	-0.018029	0.003771	-4.78	1.75e-06 ***
DirectionS2M:Motor_RegionM1	-0.003448	0.006423	-0.54	0.59142
DirectionS2M:Motor_RegionvPMC	-0.004515	0.006276	-0.72	0.47188

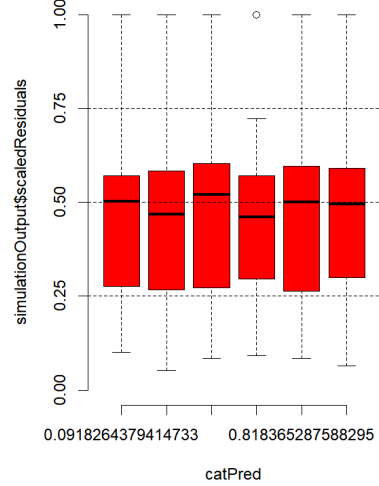
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PTEs: Theta band left

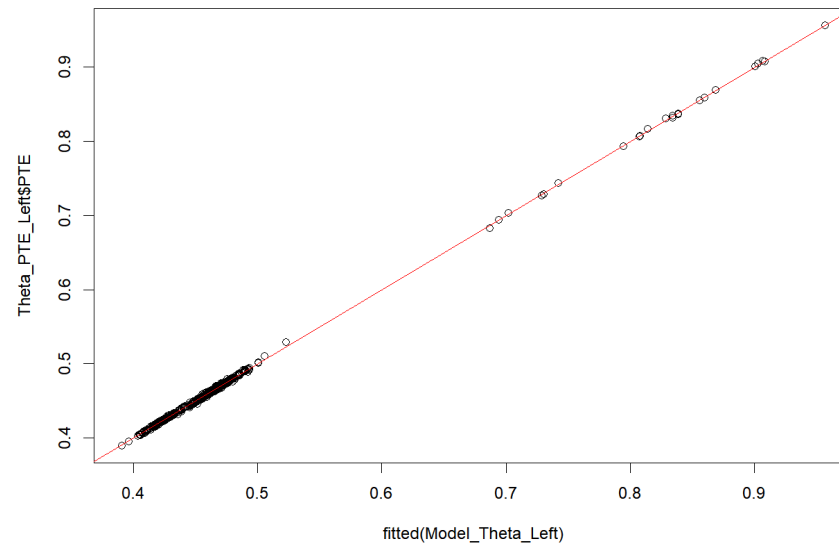
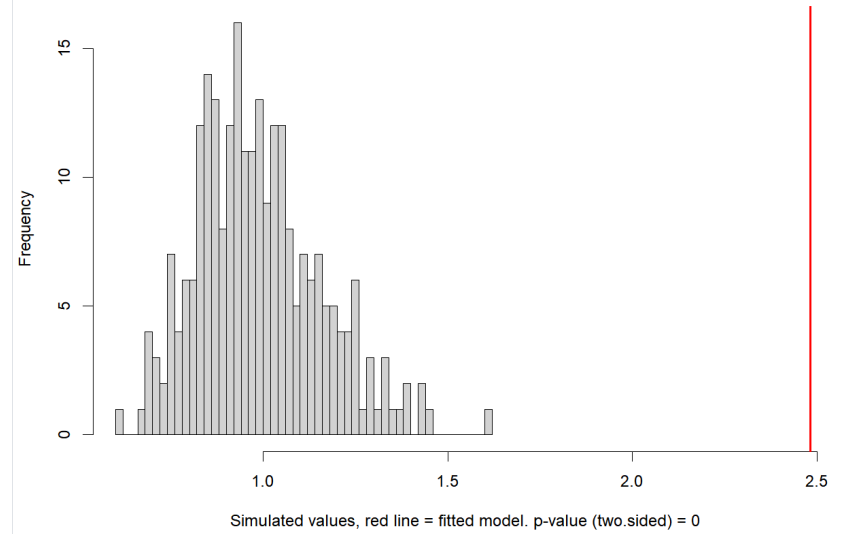
DHARMA residual



Within-group deviations from uniformity significant (red)
Levene Test for homogeneity of variance n.s.



DHARMA nonparametric dispersion test via sd of residuals fitted vs. simulated



PTEs: Theta band right

Family: Gamma (inverse)
Formula: PTE ~ Direction * Motor_Region + (1 + Direction * Motor_Region || ID)
Data: Theta_PTE_Right

AIC	BIC	logLik	deviance	df.resid
-3000.7	-2944.9	1513.3	-3026.7	527

Random effects:

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	0.0634521	0.25190	
	DirectionS2M	0.0046471	0.06817	0.00
	Motor_RegionM1	0.0003893	0.01973	0.00 0.00
	Motor_RegionvPMC	0.0019101	0.04371	0.00 0.00 0.00
	DirectionS2M:Motor_RegionM1	0.0026558	0.05153	0.00 0.00 0.00 0.00
	DirectionS2M:Motor_RegionvPMC	0.0022916	0.04787	0.00 0.00 0.00 0.00 0.00

Number of obs: 540, groups: ID, 90

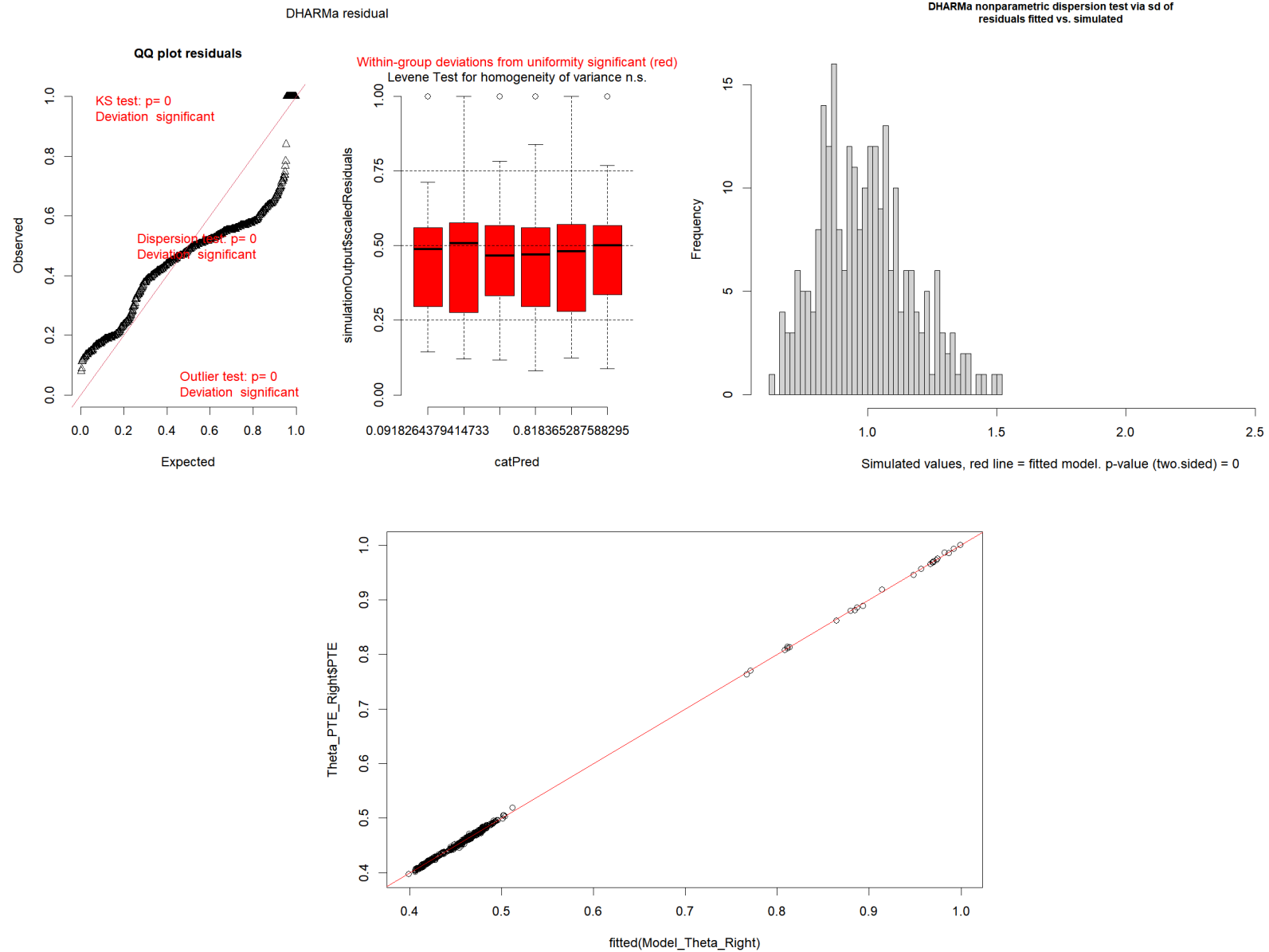
Dispersion estimate for Gamma family (σ^2): 6.37e-05

Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	2.1569233	0.0266137	81.05	< 2e-16 ***
DirectionS2M	0.0287074	0.0076329	3.76	0.000169 ***
Motor_RegionM1	0.0008131	0.0032920	0.25	0.804924
Motor_RegionvPMC	-0.0158688	0.0052646	-3.01	0.002576 **
DirectionS2M:Motor_RegionM1	-0.0138202	0.0065331	-2.12	0.034395 *
DirectionS2M:Motor_RegionvPMC	-0.0114989	0.0062100	-1.85	0.064070 .

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PTEs: Theta band right



PTEs: Alpha band left

Family: Gamma (inverse)
 Formula: PTE ~ Direction * Motor_Region + (1 + Direction * Motor_Region || ID)
 Data: Alpha_PTE_Left

AIC	BIC	logLik	deviance	df.resid
-2567.0	-2511.2	1296.5	-2593.0	527

Random effects:

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	0.1152621	0.33950	
	DirectionS2M	0.0720184	0.26836	0.00
	Motor_RegionM1	0.0005741	0.02396	0.00 0.00
	Motor_RegionvPMC	0.0022812	0.04776	0.00 0.00 0.00
	DirectionS2M:Motor_RegionM1	0.0143190	0.11966	0.00 0.00 0.00 0.00
	DirectionS2M:Motor_RegionvPMC	0.0144161	0.12007	0.00 0.00 0.00 0.00 0.00

Number of obs: 540, groups: ID, 90

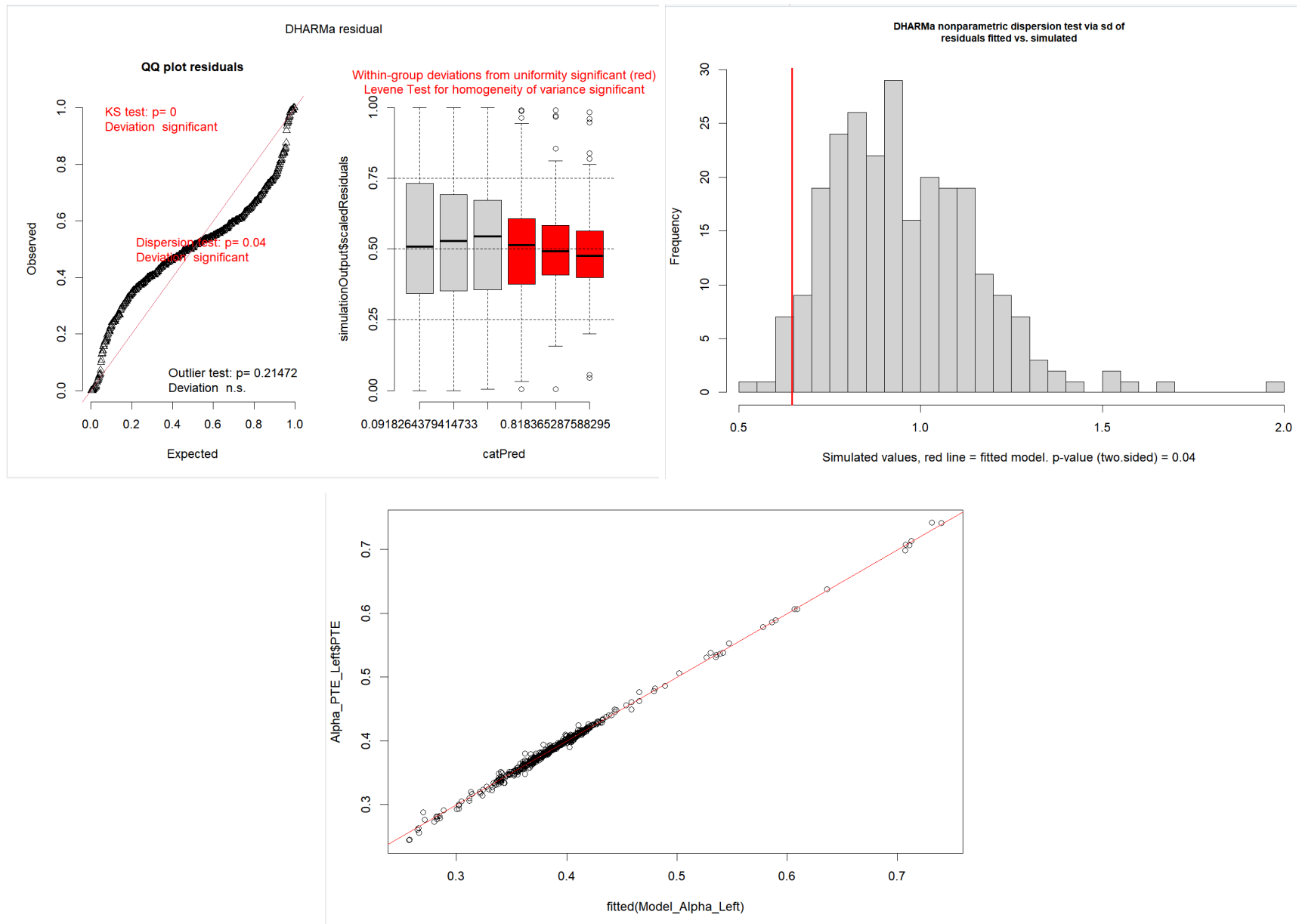
Dispersion estimate for Gamma family (σ^2): 0.000318

Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	2.694938	0.036141	74.57	< 2e-16 ***
DirectionS2M	-0.175872	0.029121	-6.04	1.55e-09 ***
Motor_RegionM1	-0.022730	0.007505	-3.03	0.00246 **
Motor_RegionvPMC	-0.048142	0.008656	-5.56	2.67e-08 ***
DirectionS2M:Motor_RegionM1	0.074953	0.015959	4.70	2.64e-06 ***
DirectionS2M:Motor_RegionvPMC	0.036672	0.015950	2.30	0.02149 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PTEs: Alpha band left



PTEs: Alpha band right

Family: Gamma (inverse)
Formula: PTE ~ Direction * Motor_Region + (1 + Direction * Motor_Region || ID)
Data: Alpha_PTE_Right

AIC	BIC	logLik	deviance	df.resid
-2510.2	-2454.4	1268.1	-2536.2	527

Random effects:

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	0.1228429	0.35049	
	DirectionS2M	0.0796054	0.28214	0.00
	Motor_RegionM1	0.0004651	0.02157	0.00 0.00
	Motor_RegionvPMC	0.0093856	0.09688	0.00 0.00 0.00
	DirectionS2M:Motor_RegionM1	0.0151348	0.12302	0.00 0.00 0.00 0.00
	DirectionS2M:Motor_RegionvPMC	0.0248355	0.15759	0.00 0.00 0.00 0.00 0.00

Number of obs: 540, groups: ID, 90

Dispersion estimate for Gamma family (σ^2): 0.000183

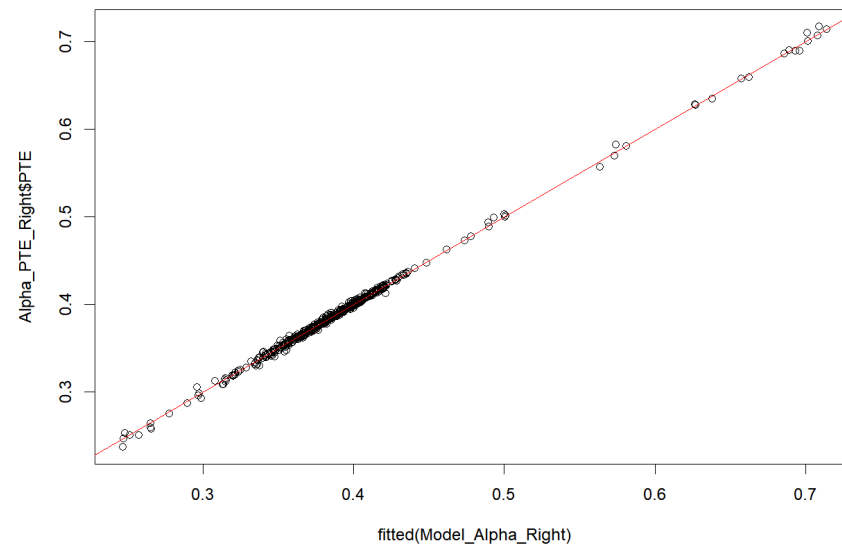
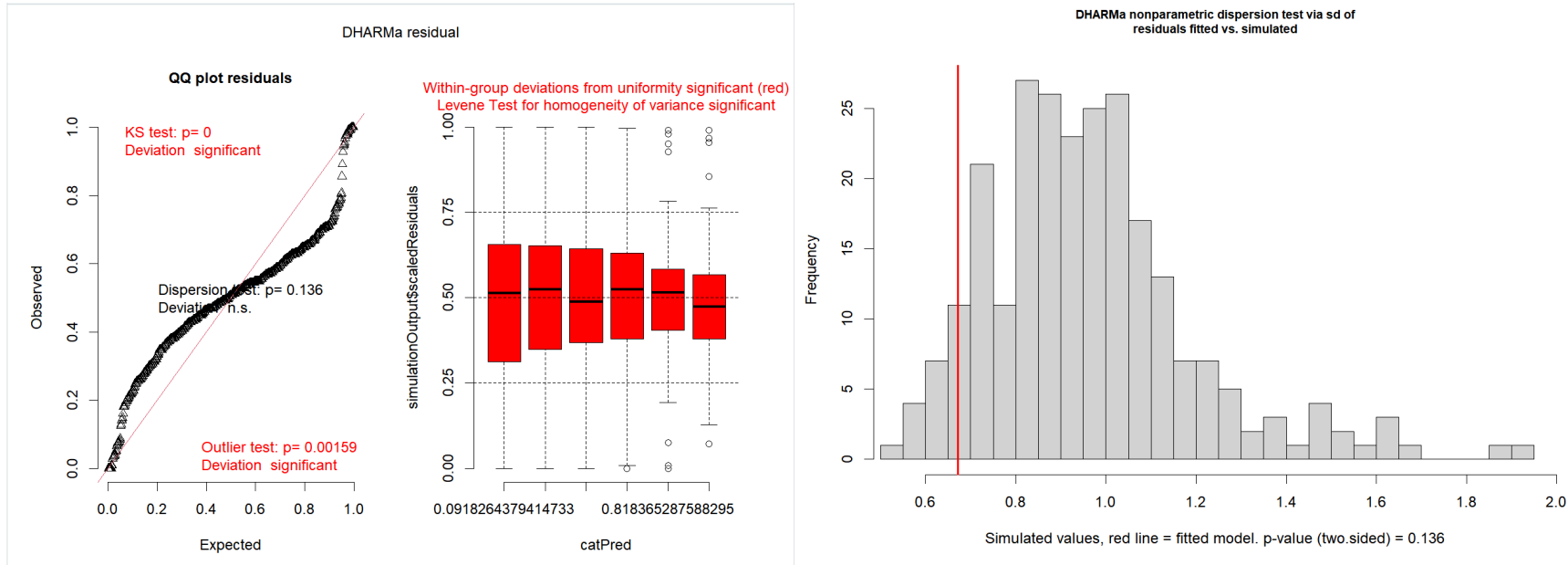
Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	2.671648	0.037140	71.93	< 2e-16 ***
DirectionS2M	-0.126766	0.030201	-4.20	2.70e-05 ***
Motor_RegionM1	-0.005095	0.005804	-0.88	0.37996
Motor_RegionvPMC	-0.037402	0.011530	-3.24	0.00118 **
DirectionS2M:Motor_RegionM1	0.062279	0.014954	4.16	3.12e-05 ***
DirectionS2M:Motor_RegionvPMC	0.003364	0.018179	0.19	0.85321

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PTEs:

Alpha band right



PTEs: Beta band left

Family: Gamma (inverse)
Formula: PTE ~ Direction * Motor_Region + (1 + Direction * Motor_Region || ID)
Data: Beta_PTE_Left

AIC	BIC	logLik	deviance	df.resid
-3444.0	-3388.2	1735.0	-3470.0	527

Random effects:

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	0.0098814	0.09941	
	DirectionS2M	0.0084680	0.09202	0.00
	Motor_RegionM1	0.0002934	0.01713	0.00 0.00
	Motor_RegionvPMC	0.0010025	0.03166	0.00 0.00 0.00
	DirectionS2M:Motor_RegionM1	0.0079357	0.08908	0.00 0.00 0.00 0.00
	DirectionS2M:Motor_RegionvPMC	0.0051056	0.07145	0.00 0.00 0.00 0.00 0.00

Number of obs: 540, groups: ID, 90

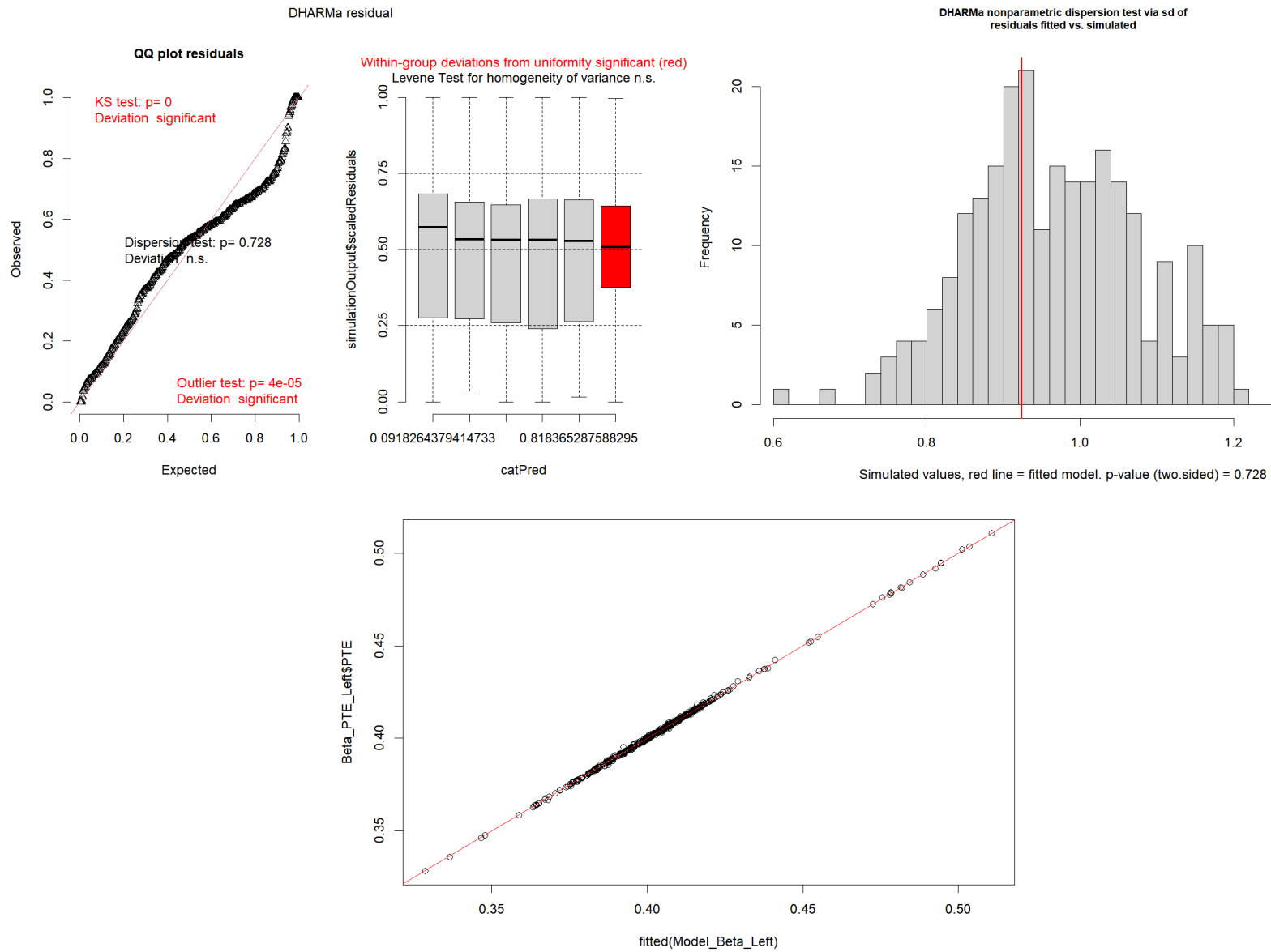
Dispersion estimate for Gamma family (σ^2): 1.44e-05

Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	2.486896	0.010525	236.27	< 2e-16 ***
DirectionS2M	0.001106	0.009802	0.11	0.91020
Motor_RegionM1	-0.006488	0.002289	-2.83	0.00459 **
Motor_RegionvPMC	-0.023019	0.003620	-6.36	2.03e-10 ***
DirectionS2M:Motor_RegionM1	0.031526	0.009600	3.28	0.00102 **
DirectionS2M:Motor_RegionvPMC	-0.008627	0.007788	-1.11	0.26799

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PTEs: Beta band left



PTEs: Beta band right

```
Family:      Gamma ( inverse )
Formula:     PTE ~ Direction * Motor_Region + (1 + Direction * Motor_Region || ID)
Data:        Beta_PTE_Right
```

AIC	BIC	logLik	deviance	df.resid
-3316.4	-3260.6	1671.2	-3342.4	527

Random effects:

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	0.0126294	0.11238	
	DirectionS2M	0.0120505	0.10977	0.00
	Motor_RegionM1	0.0002853	0.01689	0.00 0.00
	Motor_RegionvPMC	0.0015142	0.03891	0.00 0.00 0.00
	DirectionS2M:Motor_RegionM1	0.0051350	0.07166	0.00 0.00 0.00 0.00
	DirectionS2M:Motor_RegionvPMC	0.0063202	0.07950	0.00 0.00 0.00 0.00 0.00

Number of obs: 540, groups: ID, 90

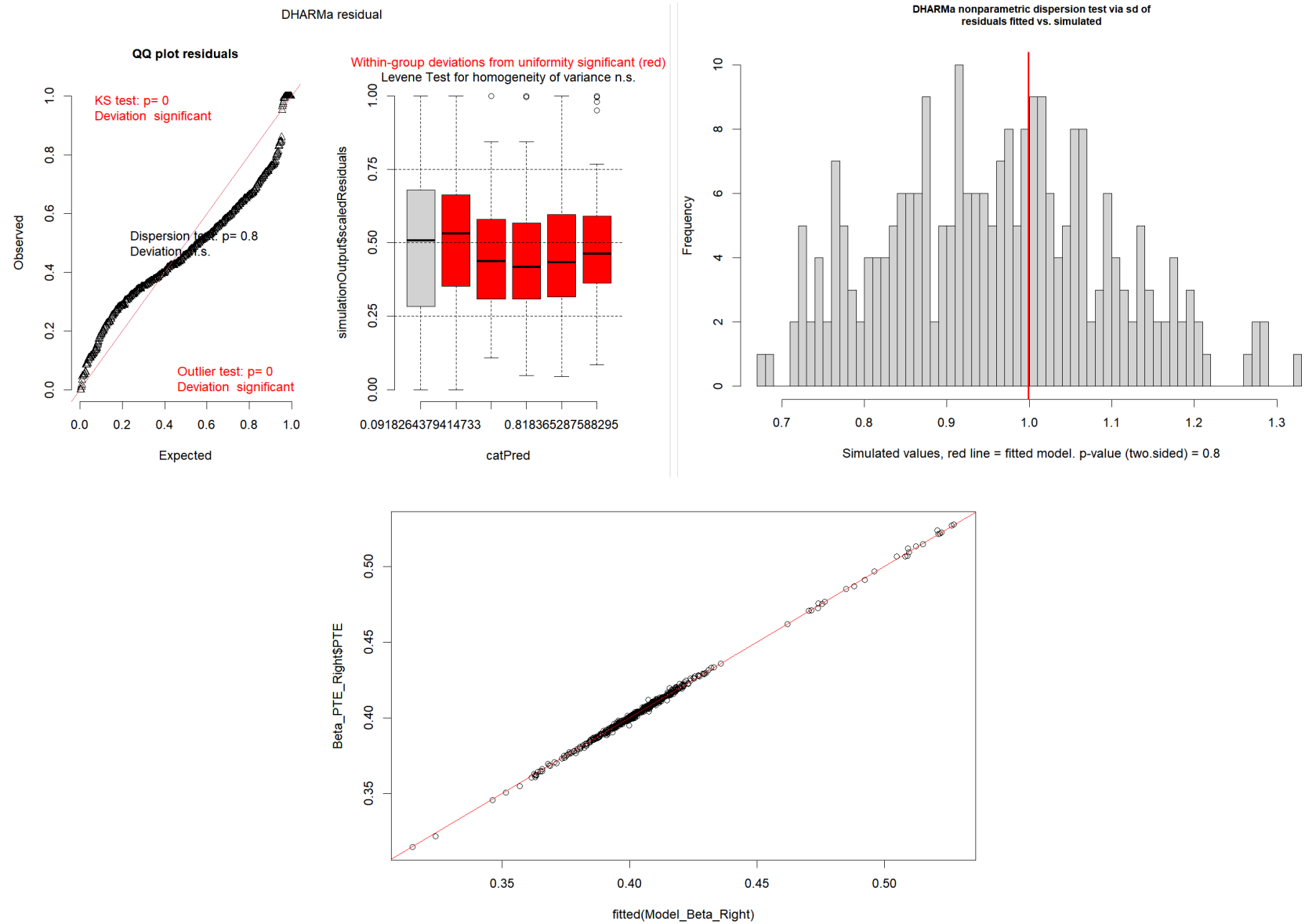
Dispersion estimate for Gamma family (σ^2): 3.22e-05

Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	2.470041	0.011938	206.91	< 2e-16 ***
DirectionS2M	0.030904	0.011762	2.63	0.008601 **
Motor_RegionM1	-0.010833	0.002740	-3.95	7.71e-05 ***
Motor_RegionvPMC	-0.026097	0.004598	-5.68	1.38e-08 ***
DirectionS2M:Motor_RegionM1	0.027212	0.008119	3.35	0.000803 ***
DirectionS2M:Motor_RegionvPMC	-0.033028	0.008885	-3.72	0.000201 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PTEs: Beta band right



PTEs: Gamma1 band left

Family: Gamma (inverse)
Formula: PTE ~ Direction * Motor_Region + (1 + Direction * Motor_Region || ID)
Data: Gammal_PTE_Left

AIC	BIC	logLik	deviance	df.resid
-4152.7	-4096.9	2089.4	-4178.7	527

Random effects:

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	0.0022745	0.04769	
	DirectionS2M	0.0009322	0.03053	0.00
	Motor_RegionM1	0.0001103	0.01050	0.00 0.00
	Motor_RegionvPMC	0.0008040	0.02835	0.00 0.00 0.00
	DirectionS2M:Motor_RegionM1	0.0007484	0.02736	0.00 0.00 0.00 0.00
	DirectionS2M:Motor_RegionvPMC	0.0001485	0.01219	0.00 0.00 0.00 0.00 0.00

Number of obs: 540, groups: ID, 90

Dispersion estimate for Gamma family (σ^2): 2.47e-05

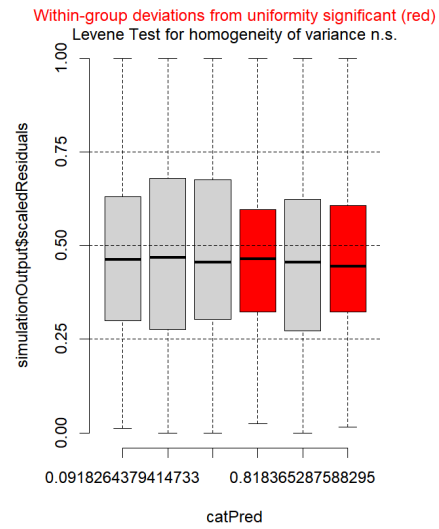
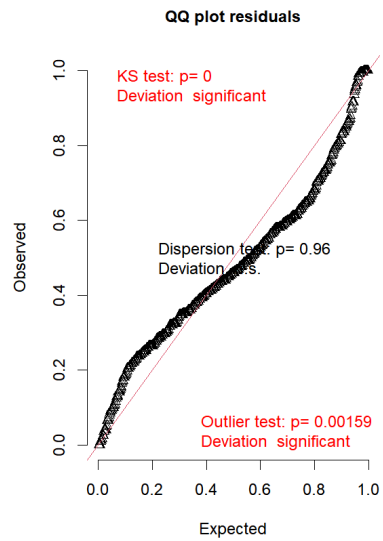
Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	2.4828250	0.0051925	478.2	< 2e-16 ***
DirectionS2M	-0.0060311	0.0037053	-1.6	0.1036
Motor_RegionM1	-0.0024553	0.0021452	-1.1	0.2524
Motor_RegionvPMC	-0.0194607	0.0035053	-5.6	2.83e-08 ***
DirectionS2M:Motor_RegionM1	0.0092172	0.0038814	2.4	0.0176 *
DirectionS2M:Motor_RegionvPMC	-0.0008368	0.0028878	-0.3	0.7720

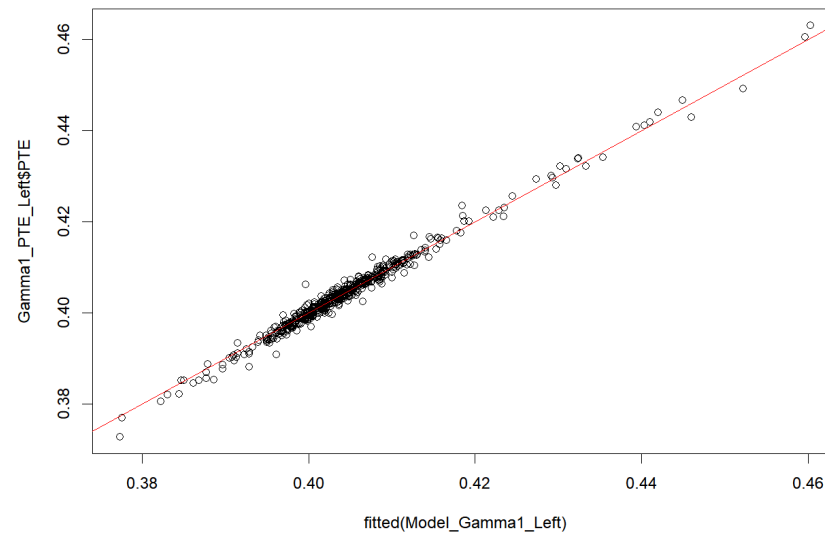
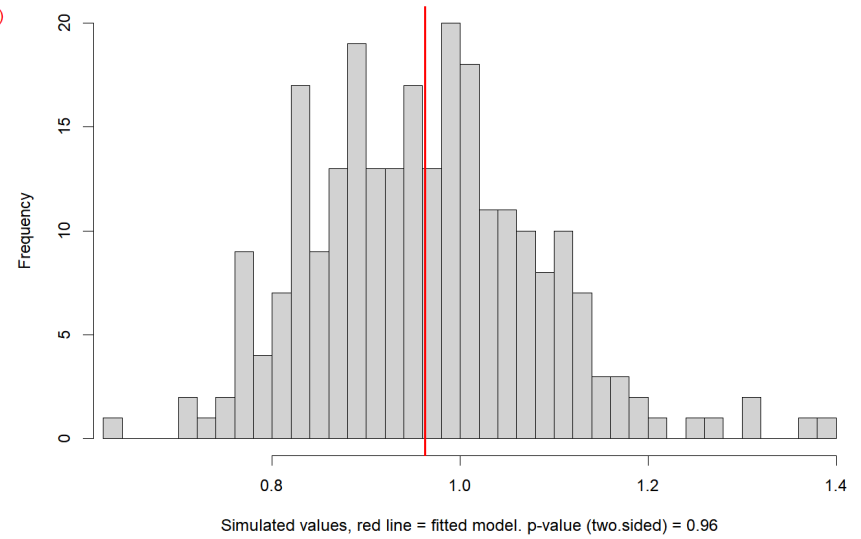
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PTEs: Gamma1 band left

DHARMA residual



DHARMA nonparametric dispersion test via sd of residuals fitted vs. simulated



PTEs: Gamma1 band right

Family: Gamma (inverse)
Formula: PTE ~ Direction * Motor_Region + (1 + Direction * Motor_Region || ID)
Data: Gamma1_PTE_Right

AIC	BIC	logLik	deviance	df.resid
-4090.6	-4034.8	2058.3	-4116.6	527

Random effects:

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	3.973e-03	0.063031	
	DirectionS2M	9.007e-04	0.030012	0.00
	Motor_RegionM1	4.778e-05	0.006912	0.00 0.00
	Motor_RegionvPMC	6.540e-04	0.025573	0.00 0.00 0.00
	DirectionS2M:Motor_RegionM1	1.251e-03	0.035365	0.00 0.00 0.00 0.00
	DirectionS2M:Motor_RegionvPMC	3.680e-04	0.019183	0.00 0.00 0.00 0.00 0.00

Number of obs: 540, groups: ID, 90

Dispersion estimate for Gamma family (σ^2): 2.18e-05

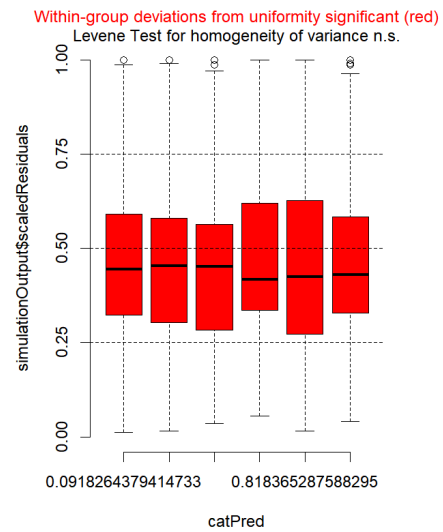
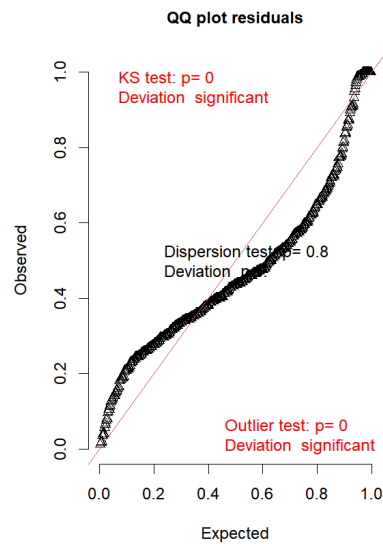
Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	2.474754	0.006755	366.4	< 2e-16 ***
DirectionS2M	-0.008109	0.003601	-2.3	0.0243 *
Motor_RegionM1	-0.004321	0.001869	-2.3	0.0208 *
Motor_RegionvPMC	-0.018649	0.003196	-5.8	5.37e-09 ***
DirectionS2M:Motor_RegionM1	0.014135	0.004452	3.2	0.0015 **
DirectionS2M:Motor_RegionvPMC	0.000839	0.003157	0.3	0.7904

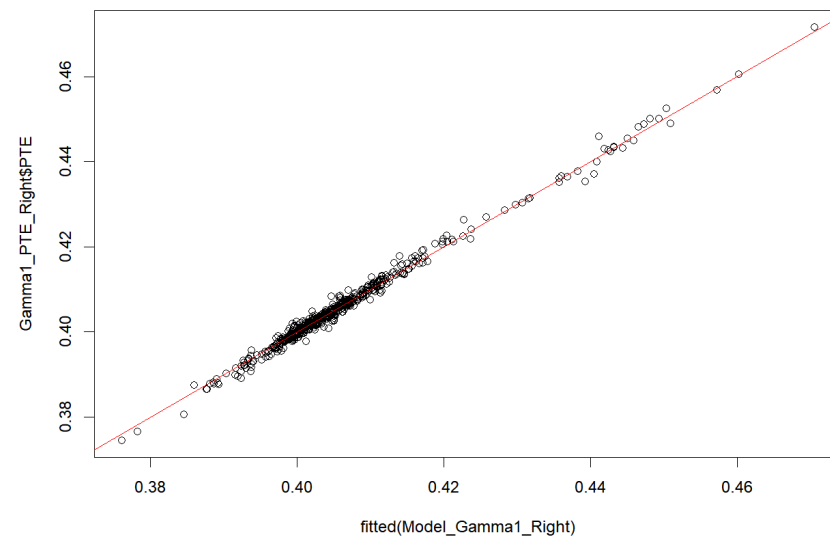
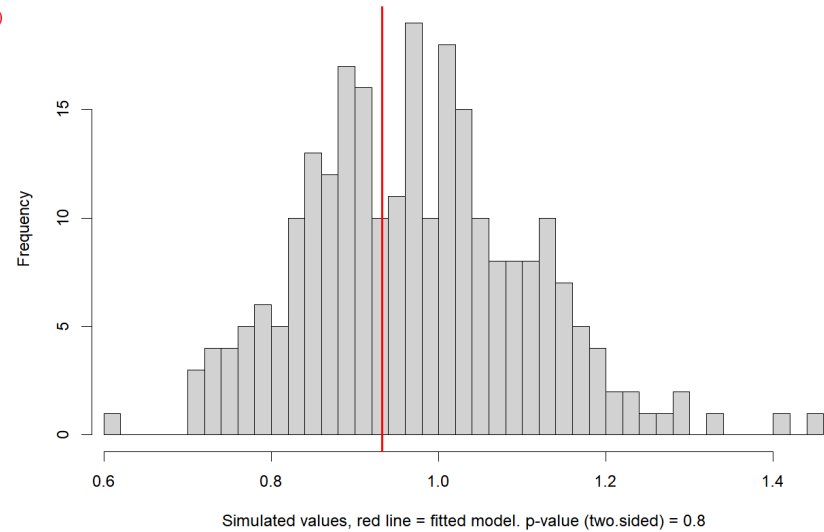
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PTEs: Gamma1 band right

DHARMA residual



DHARMA nonparametric dispersion test via sd of residuals fitted vs. simulated



PTEs: Gamma2 band left

Family: Gamma (inverse)
Formula: PTE ~ Direction * Motor_Region + (1 + Direction * Motor_Region || ID)
Data: Gamma2_PTE_Left

AIC	BIC	logLik	deviance	df.resid
-4517.9	-4462.1	2272.0	-4543.9	527

Random effects:

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	0.0134800	0.11610	
	DirectionS2M	0.0025146	0.05015	0.00
	Motor_RegionM1	0.0033886	0.05821	0.00 0.00
	Motor_RegionvPMC	0.0151219	0.12297	0.00 0.00 0.00
	DirectionS2M:Motor_RegionM1	0.0001919	0.01385	0.00 0.00 0.00 0.00
	DirectionS2M:Motor_RegionvPMC	0.0004975	0.02231	0.00 0.00 0.00 0.00 0.00

Number of obs: 540, groups: ID, 90

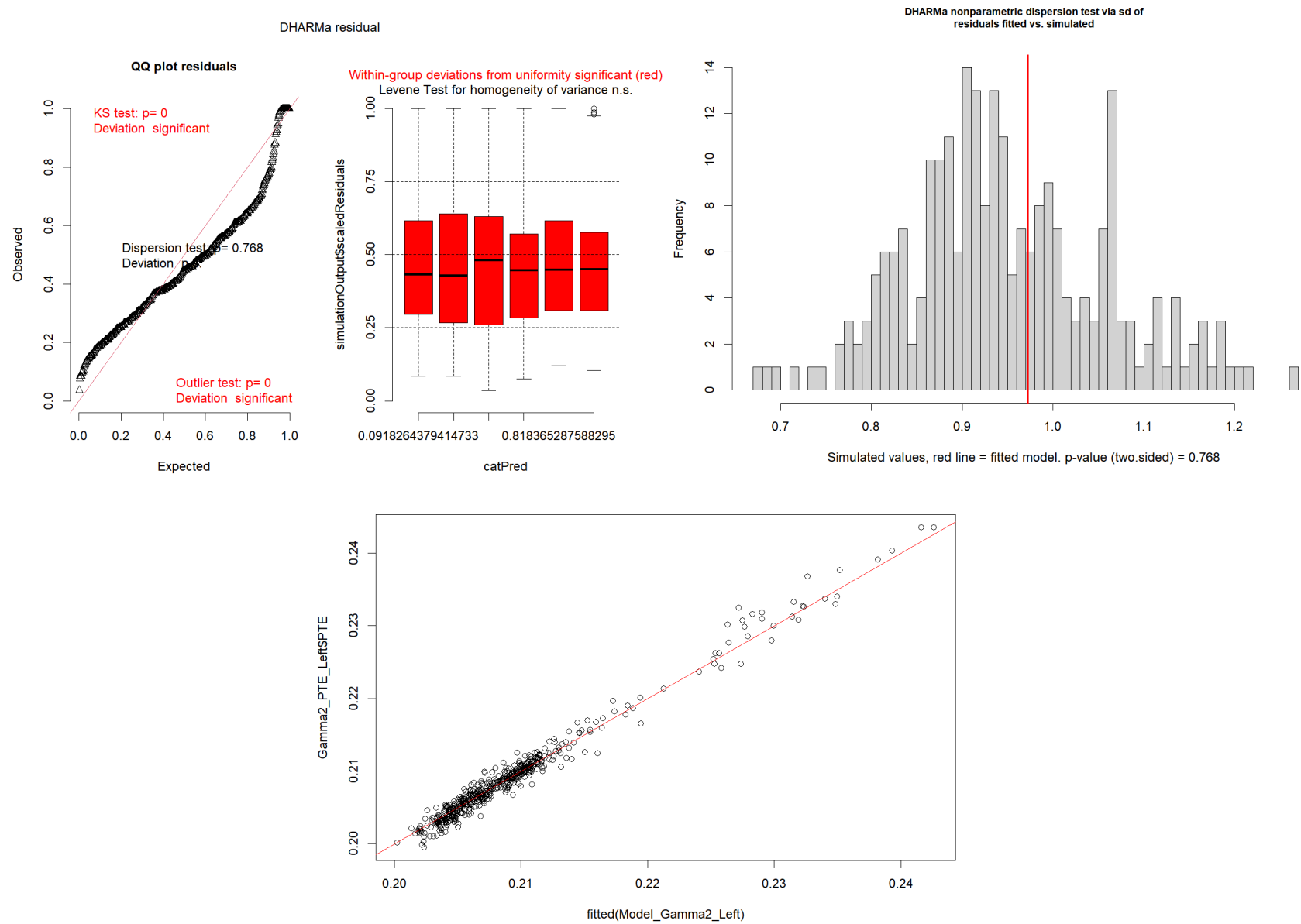
Dispersion estimate for Gamma family (σ^2): 5.86e-05

Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	4.8217058	0.0128424	375.5	< 2e-16 ***
DirectionS2M	-0.0230118	0.0076168	-3.0	0.00252 **
Motor_RegionM1	0.0002131	0.0082399	0.0	0.97937
Motor_RegionvPMC	-0.0666820	0.0140662	-4.7	2.13e-06 ***
DirectionS2M:Motor_RegionM1	-0.0102509	0.0078862	-1.3	0.19365
DirectionS2M:Motor_RegionvPMC	0.0072451	0.0080530	0.9	0.36829

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PTEs: Gamma2 band left



PTEs: Gamma2 band right

Family: Gamma (inverse)
Formula: PTE ~ Direction * Motor_Region + (1 + Direction * Motor_Region || ID)
Data: Gamma2_PTE_Right

AIC	BIC	logLik	deviance	df.resid
-4528.3	-4472.5	2277.2	-4554.3	527

Random effects:

Conditional model:

Groups	Name	Variance	Std.Dev.	Corr
ID	(Intercept)	0.017857	0.13363	
	DirectionS2M	0.002593	0.05092	0.00
	Motor_RegionM1	0.002635	0.05133	0.00 0.00
	Motor_RegionvPMC	0.012438	0.11153	0.00 0.00 0.00
	DirectionS2M:Motor_RegionM1	0.001616	0.04020	0.00 0.00 0.00 0.00
	DirectionS2M:Motor_RegionvPMC	0.001361	0.03689	0.00 0.00 0.00 0.00 0.00

Number of obs: 540, groups: ID, 90

Dispersion estimate for Gamma family (σ^2): 4.27e-05

Conditional model:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	4.818551	0.014473	332.9	< 2e-16 ***
DirectionS2M	-0.024078	0.007120	-3.4	0.000721 ***
Motor_RegionM1	-0.016613	0.007156	-2.3	0.020260 *
Motor_RegionvPMC	-0.065187	0.012644	-5.2	2.53e-07 ***
DirectionS2M:Motor_RegionM1	0.007272	0.007850	0.9	0.354281
DirectionS2M:Motor_RegionvPMC	0.013773	0.007638	1.8	0.071353 .

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

PTEs: Gamma2 band right

