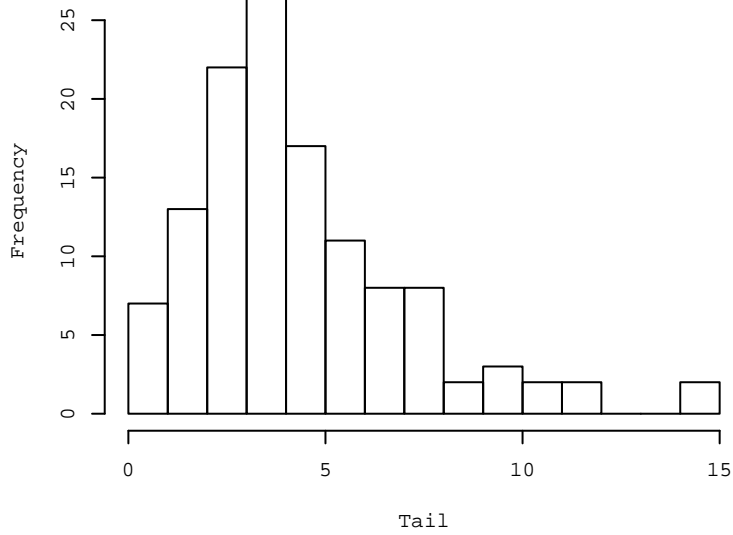
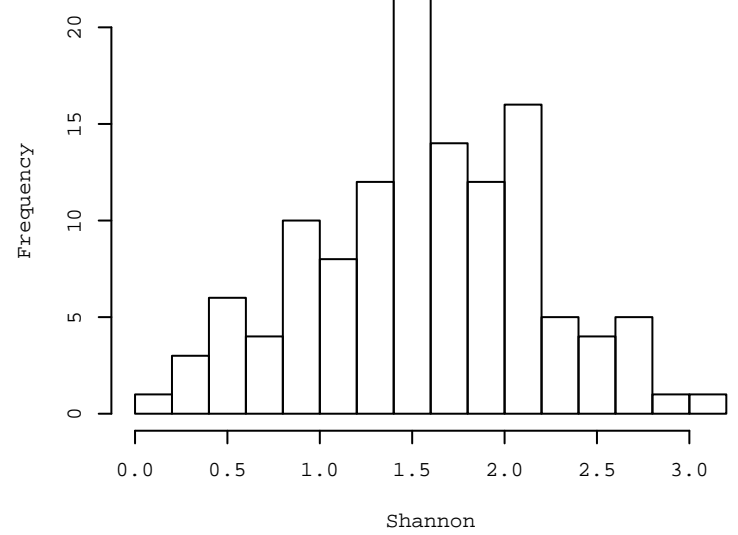


Sample Diversity Indices Distributions

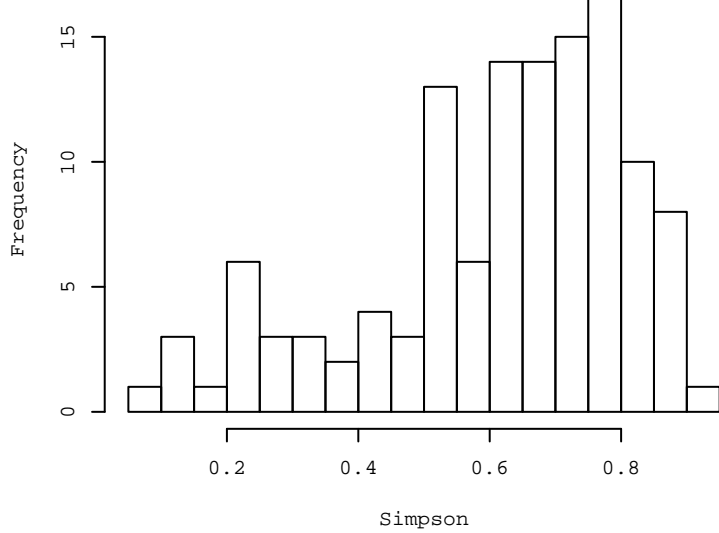
Tail



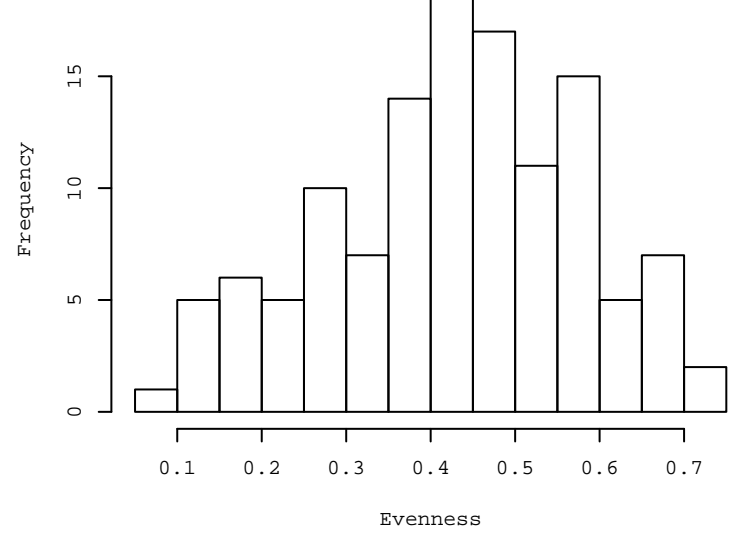
Shannon



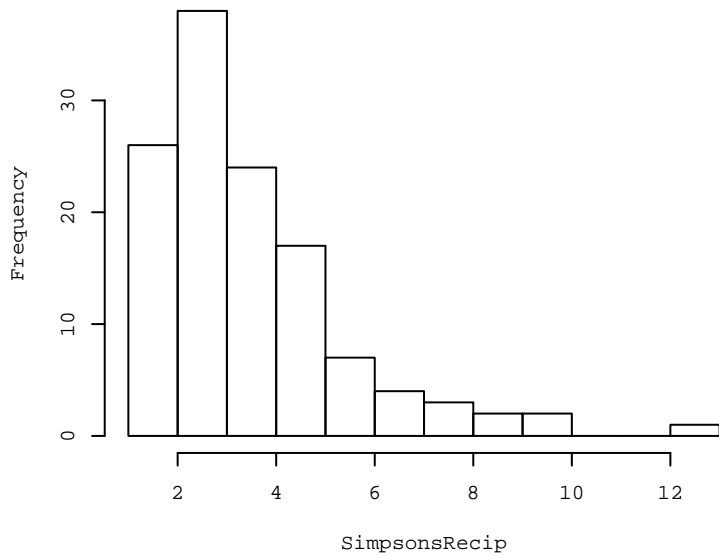
Simpson



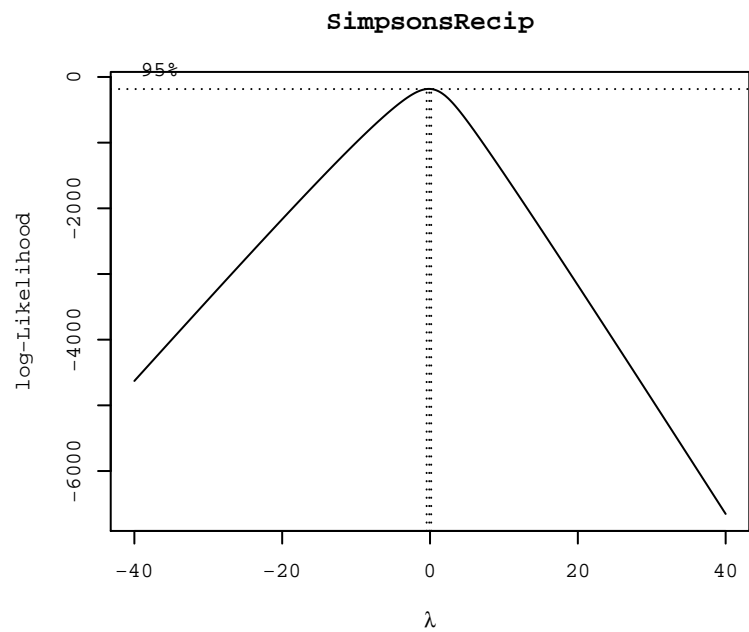
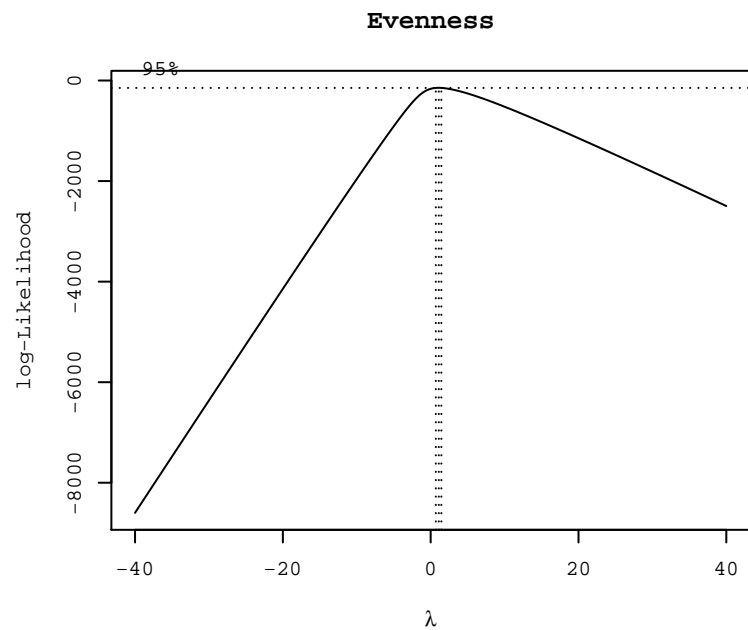
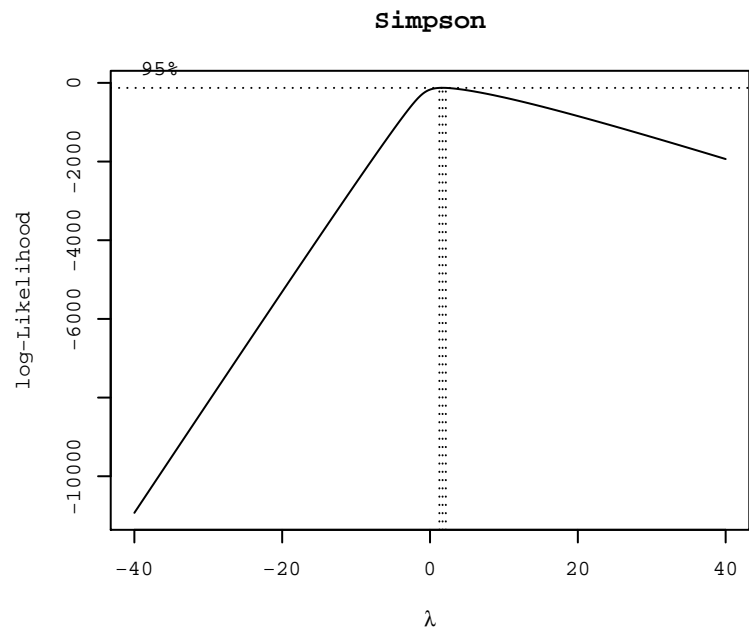
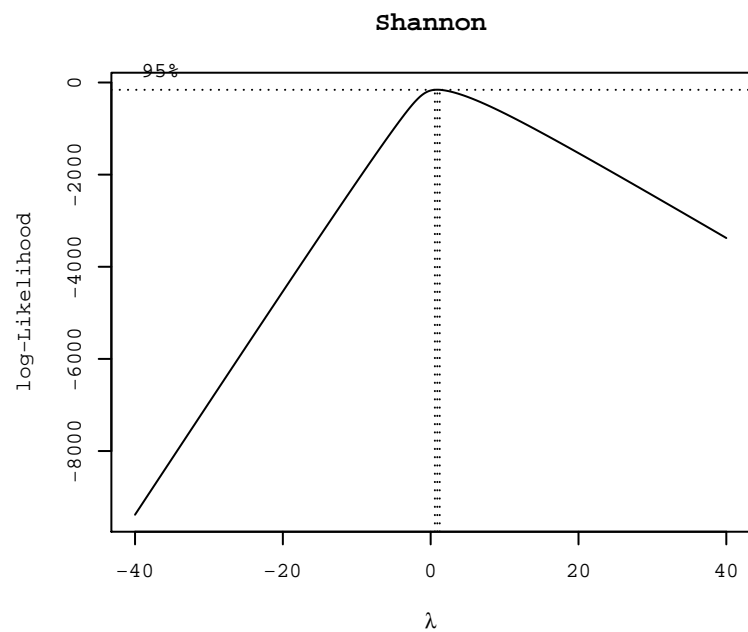
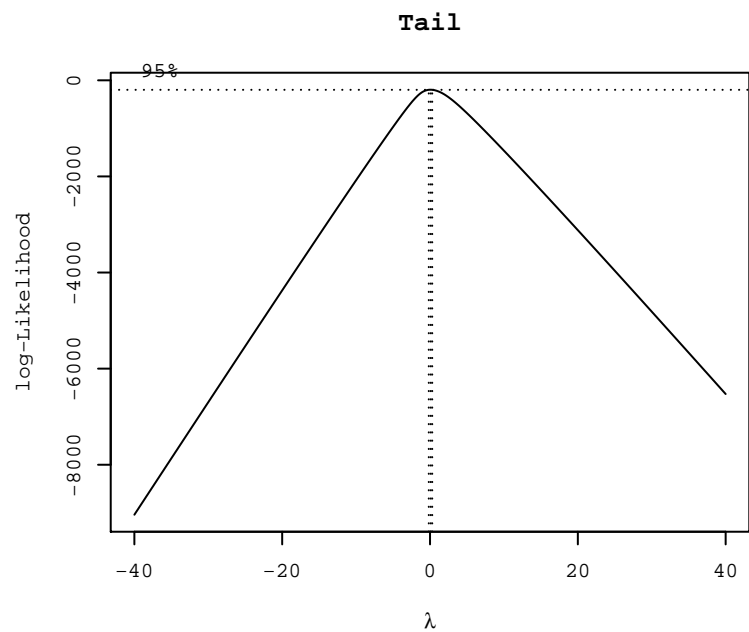
Evenness



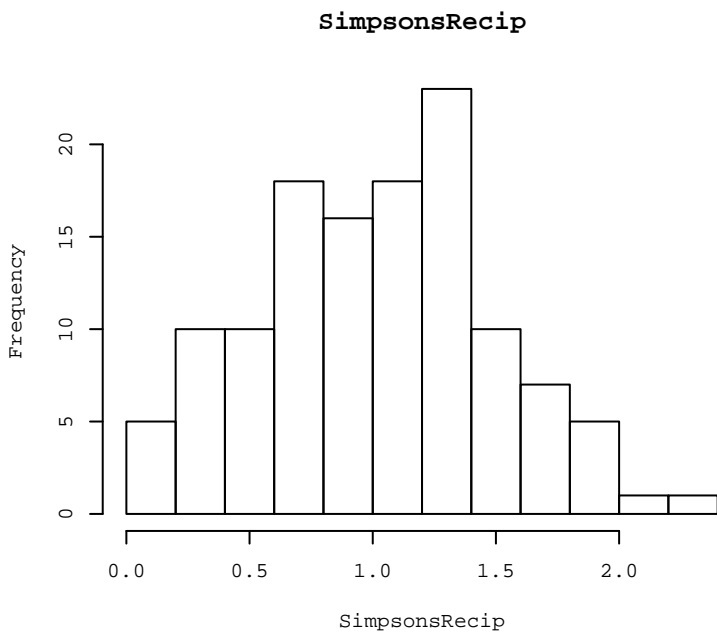
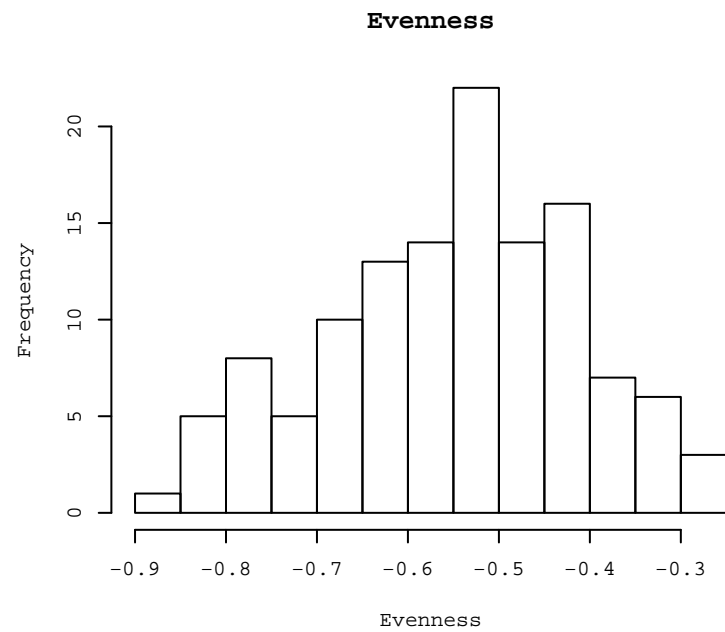
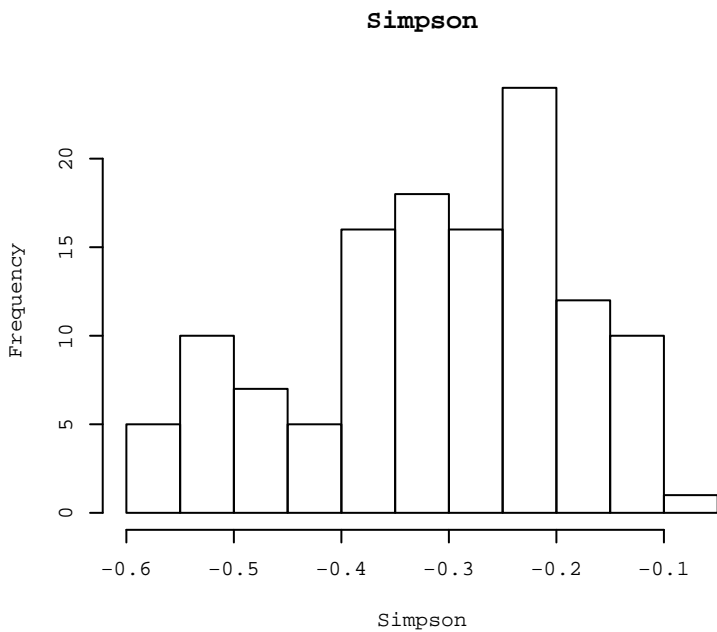
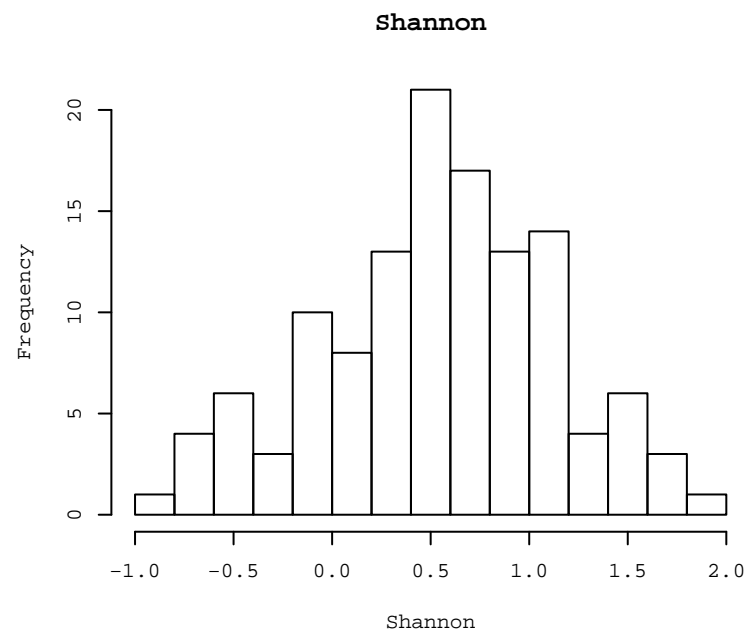
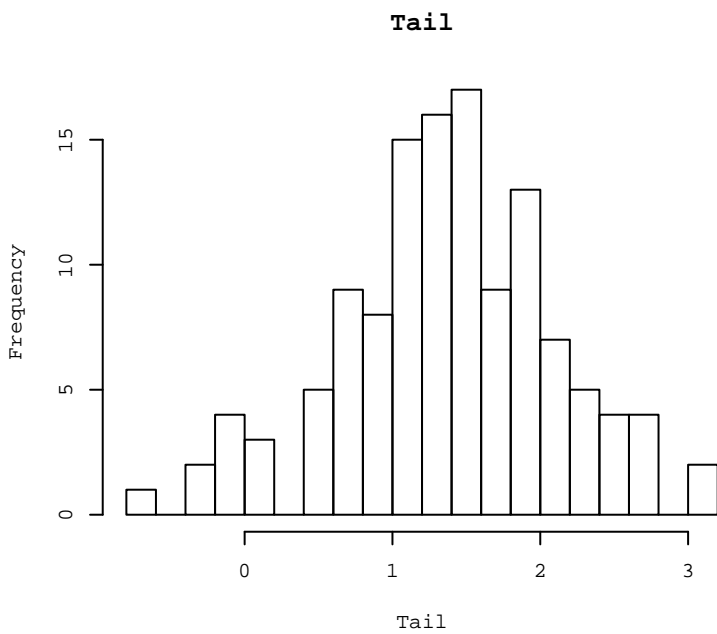
SimpsonsRecip



Box-Cox Lambda Intervals



Transformed Sample Diversity Indices Distributions



Reference factor levels:

Patient: p33
daynumber_for_collection: None (ordered factor)
Host_Age: None (ordered factor)
Host_Gender: M
Medical_complications: None (ordered factor)
Patient_diagnosis: None (ordered factor)
Post_visit_treatment: None (ordered factor)
Type: None (ordered factor)
Vacc_status: N
Fever: None (ordered factor)
SYMPTOM_COUGH: None (ordered factor)

Number of Samples: 124

Description of Factor Levels and Samples:

Patient	daynumber_for_collection	Host_Age	Host_Gender
p18	:11 Min. : 0.000	Min. : 1.20	M:56
p3	:11 1st Qu.: 2.000	1st Qu.:21.00	F:68
p12	: 9 Median : 3.000	Median :54.00	
p15	: 9 Mean : 5.508	Mean :46.63	
p20	: 9 3rd Qu.: 7.000	3rd Qu.:72.00	
p2	: 7 Max. :22.000	Max. :97.00	
(Other):68			
Medical_complications	Patient_diagnosis	Post_visit_treatment	Type
Min. :0.0000	Min. :1.000	Min. :0.000	Min. :0.0000
1st Qu.:0.0000	1st Qu.:1.000	1st Qu.:3.000	1st Qu.:0.0000
Median :1.0000	Median :1.000	Median :3.000	Median :1.0000
Mean :0.8065	Mean :1.532	Mean :2.718	Mean :0.6694
3rd Qu.:1.0000	3rd Qu.:2.000	3rd Qu.:3.000	3rd Qu.:1.0000
Max. :2.0000	Max. :3.000	Max. :3.000	Max. :1.0000

Vacc_status	Fever	SYMPTOM_COUGH
N:100	Min. :0.000	Min. :0.000
Y: 24	1st Qu.:1.000	1st Qu.:2.000
	Median :1.000	Median :2.000
	Mean :1.468	Mean :2.089
	3rd Qu.:2.000	3rd Qu.:3.000
	Max. :3.000	Max. :3.000

Multiple Regression for: Tail

trans ~ Patient + daynumber_for_collection + Host_Age + Host_Gender + Medical_complications + F

Call:

```
lm(formula = as.formula(model_string), data = factors)
```

Residuals:

	Min	1Q	Median	3Q	Max
	-1.32518	-0.35025	0.00186	0.36592	1.34182

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	-3.976775	1.768115	-2.249	0.026862	*
Patientp1	-1.377445	3.696833	-0.373	0.710293	
Patientp10	0.019365	4.274509	0.005	0.996395	
Patientp12	8.345612	6.255507	1.334	0.185421	
Patientp13	5.181438	2.177012	2.380	0.019350	*
Patientp15	5.548540	3.266090	1.699	0.092694	.
Patientp18	-0.242364	2.058854	-0.118	0.906545	
Patientp19	1.010163	3.387185	0.298	0.766192	
Patientp2	2.652421	1.175854	2.256	0.026431	*
Patientp20	10.792155	8.493597	1.271	0.207032	
Patientp22	0.846187	1.304187	0.649	0.518052	
Patientp23	0.215159	3.021160	0.071	0.943378	
Patientp24	1.805159	2.572601	0.702	0.484627	
Patientp25	4.613963	1.125473	4.100	8.85e-05	***
Patientp28	7.164601	5.407792	1.325	0.188462	
Patientp3	4.009640	2.364458	1.696	0.093270	.
Patientp31	6.510579	3.208316	2.029	0.045288	*
Patientp32	4.351892	3.131690	1.390	0.167959	
Patientp4	2.584000	0.622043	4.154	7.25e-05	***
Patientp6	5.240526	2.780355	1.885	0.062574	.
Patientp9	3.584113	1.021576	3.508	0.000697	***
daynumber_for_collection	0.010597	0.008841	1.199	0.233753	
Host_Age	0.004175	0.016451	0.254	0.800198	
Host_GenderF	0.155207	0.483646	0.321	0.748997	
Medical_complications	2.789609	2.944958	0.947	0.345967	
Patient_diagnosis	2.437062	2.438800	0.999	0.320248	
Post_visit_treatment	-1.306114	1.826293	-0.715	0.476294	
Type	-1.883834	2.357092	-0.799	0.426200	
Vacc_statusY	1.100164	2.900968	0.379	0.705374	
Fever	-1.380530	1.309530	-1.054	0.294514	
SYMPTOM_COUGH	0.897749	0.660918	1.358	0.177643	

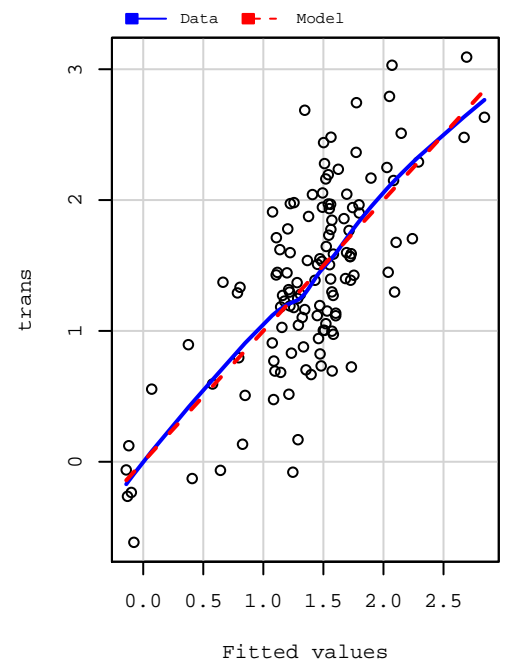
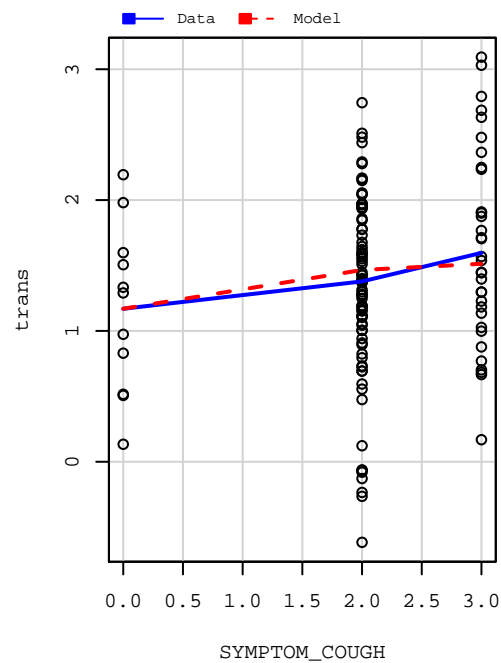
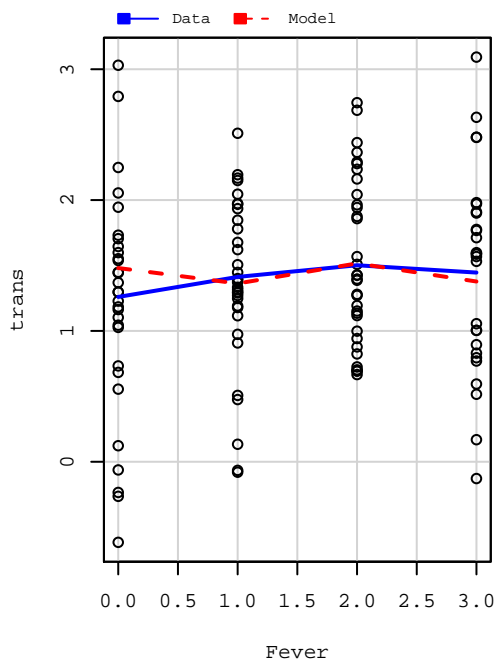
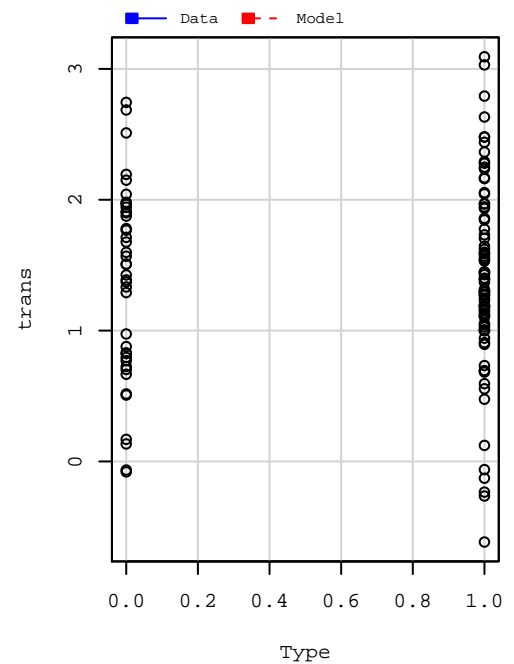
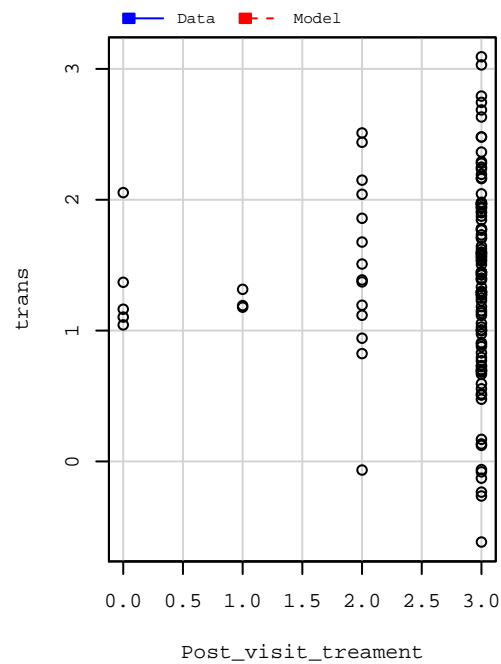
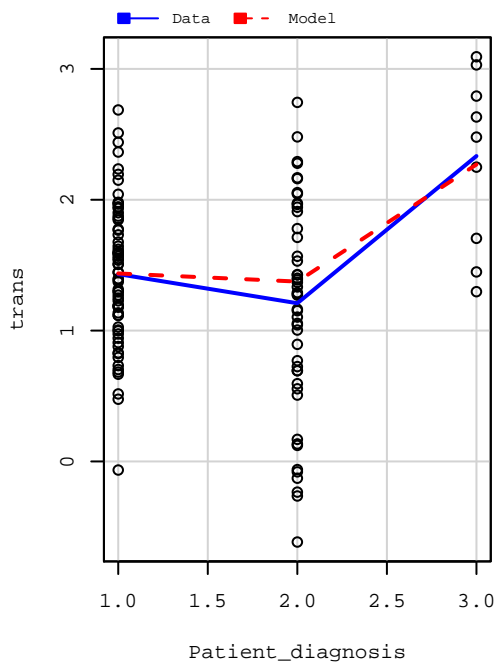
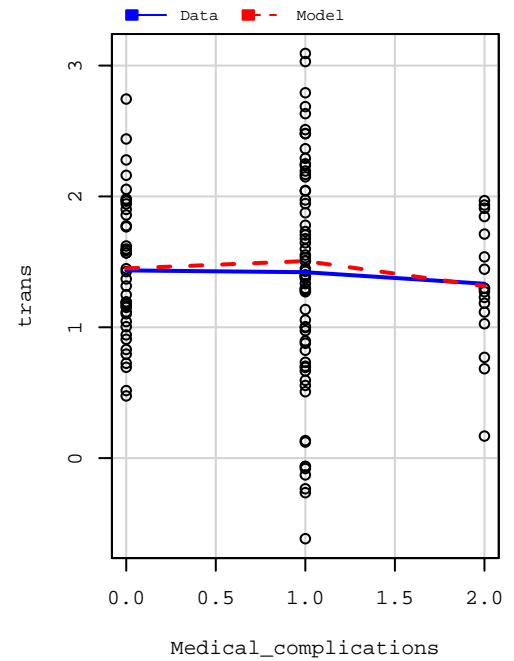
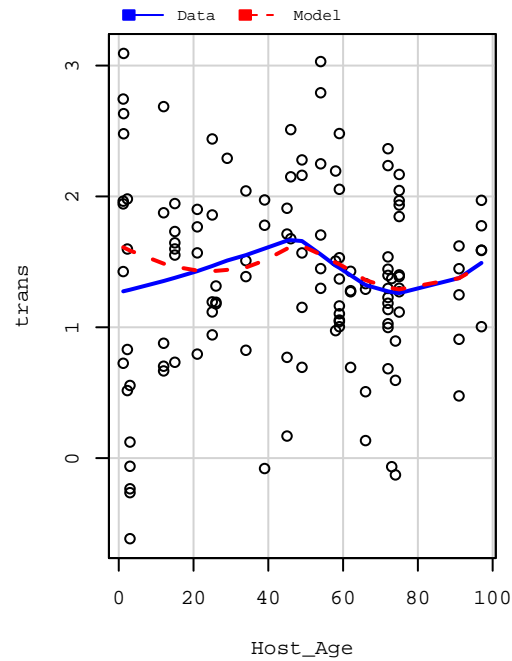
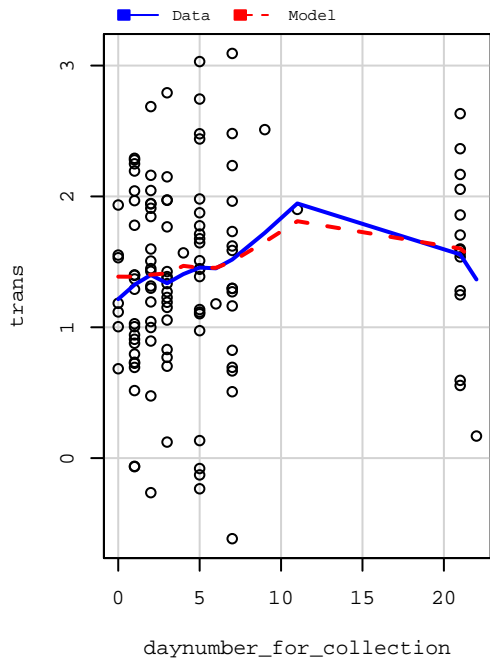
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.5711 on 93 degrees of freedom

Multiple R-squared: 0.526, Adjusted R-squared: 0.3731

F-statistic: 3.44 on 30 and 93 DF, p-value: 2.777e-06

Marginal Model Plots



Multiple Regression for: Shannon

trans ~ Patient + daynumber_for_collection + Host_Age + Host_Gender + Medical_complications + F

Call:

```
lm(formula = as.formula(model_string), data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-1.25170	-0.31853	-0.01318	0.30438	1.17925

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	-3.494789	1.552928	-2.250	0.026777	*
Patientp1	-2.300708	3.246913	-0.709	0.480356	
Patientp10	-0.975585	3.754283	-0.260	0.795547	
Patientp12	7.611819	5.494185	1.385	0.169234	
Patientp13	3.354887	1.912060	1.755	0.082623	.
Patientp15	4.393477	2.868593	1.532	0.129021	
Patientp18	-0.759001	1.808283	-0.420	0.675646	
Patientp19	-0.457129	2.974950	-0.154	0.878211	
Patientp2	1.625899	1.032748	1.574	0.118804	
Patientp20	9.610576	7.459891	1.288	0.200838	
Patientp22	0.003437	1.145462	0.003	0.997612	
Patientp23	-1.006316	2.653472	-0.379	0.705371	
Patientp24	0.685749	2.259504	0.303	0.762190	
Patientp25	3.811382	0.988498	3.856	0.000212	***
Patientp28	6.428037	4.749641	1.353	0.179217	
Patientp3	3.572430	2.076694	1.720	0.088713	.
Patientp31	5.874262	2.817851	2.085	0.039841	*
Patientp32	3.254070	2.750550	1.183	0.239800	
Patientp4	1.577867	0.546338	2.888	0.004821	**
Patientp6	4.489548	2.441974	1.838	0.069182	.
Patientp9	2.764210	0.897246	3.081	0.002716	**
daynumber_for_collection	-0.002998	0.007765	-0.386	0.700287	
Host_Age	0.009995	0.014448	0.692	0.490798	
Host_GenderF	0.312398	0.424784	0.735	0.463930	
Medical_complications	2.875644	2.586544	1.112	0.269103	
Patient_diagnosis	2.469964	2.141988	1.153	0.251817	
Post_visit_treatment	-1.414117	1.604025	-0.882	0.380263	
Type	-2.014927	2.070224	-0.973	0.332934	
Vacc_statusY	0.896149	2.547908	0.352	0.725844	
Fever	-1.274536	1.150154	-1.108	0.270658	
SYMPTOM_COUGH	0.606138	0.580481	1.044	0.299100	

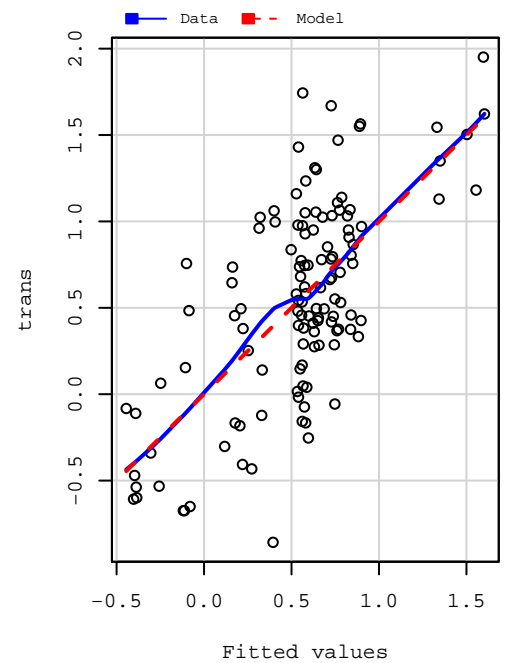
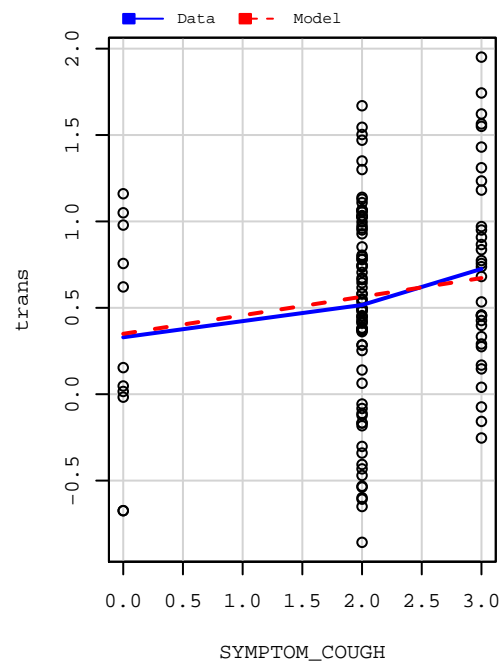
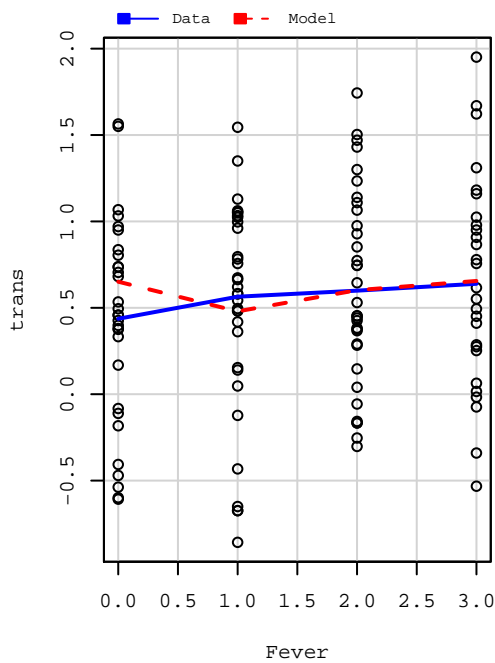
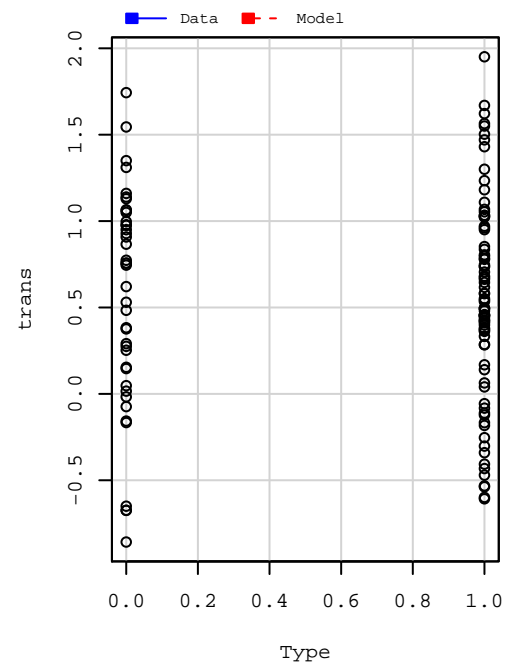
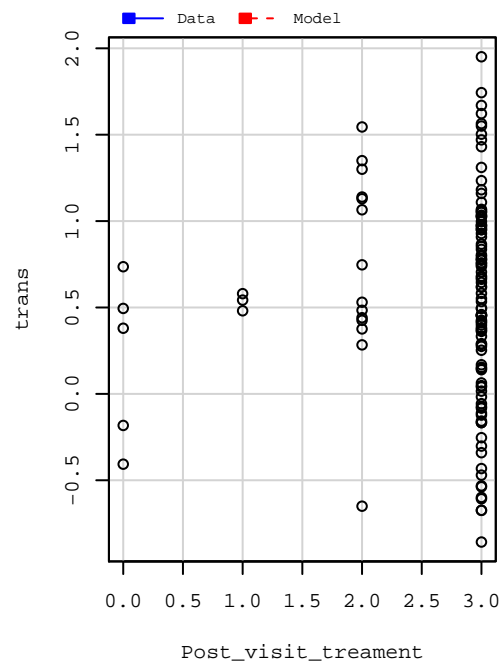
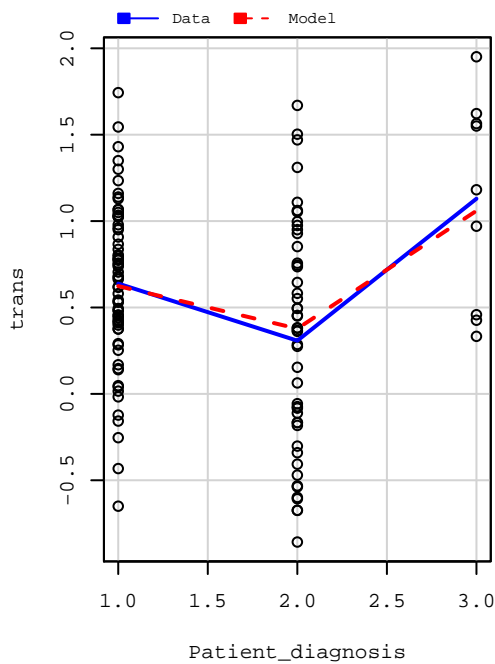
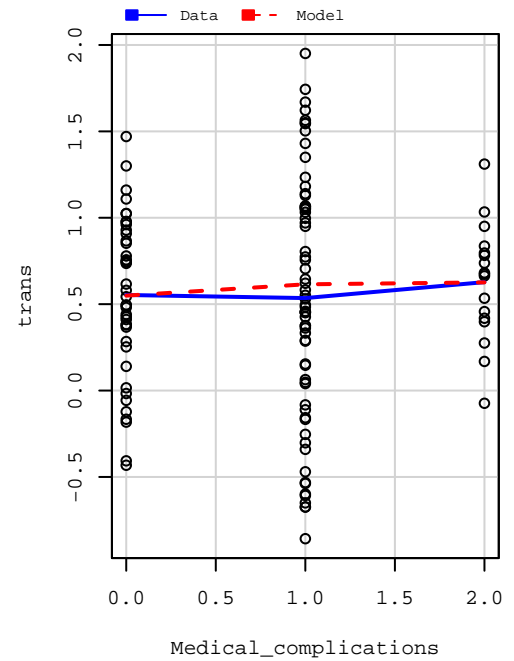
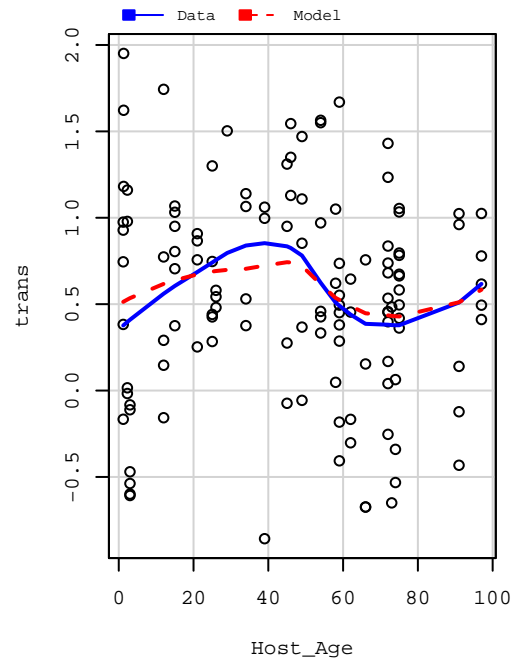
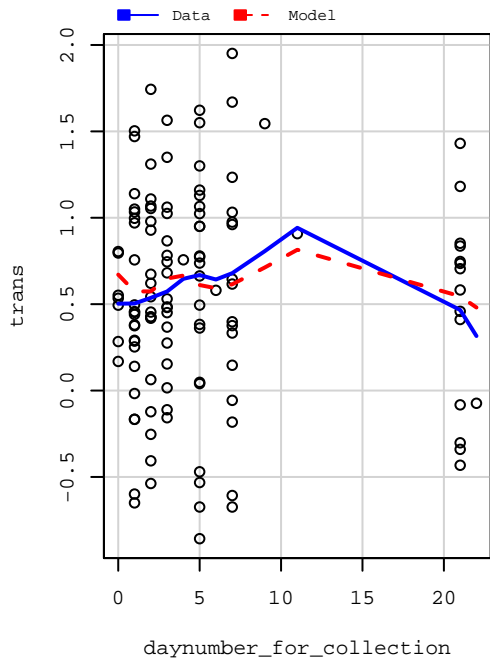
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Residual standard error: 0.5016 on 93 degrees of freedom

Multiple R-squared: 0.46, Adjusted R-squared: 0.2859

F-statistic: 2.641 on 30 and 93 DF, p-value: 0.0002018

Marginal Model Plots



Multiple Regression for: Simpson

trans ~ Patient + daynumber_for_collection + Host_Age + Host_Gender + Medical_complications + F

Call:

lm(formula = as.formula(model_string), data = factors)

Residuals:

Min	1Q	Median	3Q	Max
-0.257715	-0.073555	0.002165	0.058169	0.226697

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	-1.269372	0.336158	-3.776	0.000281	***
Patientp1	-0.944825	0.702849	-1.344	0.182128	
Patientp10	-0.733030	0.812678	-0.902	0.369391	
Patientp12	2.284368	1.189309	1.921	0.057826	.
Patientp13	0.774258	0.413898	1.871	0.064538	.
Patientp15	1.229121	0.620955	1.979	0.050728	.
Patientp18	-0.383419	0.391433	-0.980	0.329862	
Patientp19	-0.550449	0.643978	-0.855	0.394879	
Patientp2	0.177200	0.223556	0.793	0.430002	
Patientp20	2.928491	1.614819	1.814	0.072979	.
Patientp22	-0.138364	0.247955	-0.558	0.578170	
Patientp23	-0.600172	0.574389	-1.045	0.298783	
Patientp24	-0.196196	0.489108	-0.401	0.689244	
Patientp25	0.837644	0.213977	3.915	0.000172	***
Patientp28	1.896693	1.028140	1.845	0.068252	.
Patientp3	1.010861	0.449535	2.249	0.026894	*
Patientp31	1.555631	0.609971	2.550	0.012396	*
Patientp32	0.931338	0.595403	1.564	0.121164	
Patientp4	0.339917	0.118264	2.874	0.005019	**
Patientp6	1.220033	0.528606	2.308	0.023215	*
Patientp9	0.650667	0.194224	3.350	0.001168	**
daynumber_for_collection	-0.001295	0.001681	-0.770	0.443087	
Host_Age	0.004271	0.003128	1.366	0.175376	
Host_GenderF	0.132186	0.091952	1.438	0.153916	
Medical_complications	0.930440	0.559901	1.662	0.099922	.
Patient_diagnosis	0.798403	0.463669	1.722	0.088408	.
Post_visit_treatment	-0.507930	0.347218	-1.463	0.146878	
Type	-0.703529	0.448135	-1.570	0.119834	
Vacc_statusY	0.496737	0.551538	0.901	0.370106	
Fever	-0.407959	0.248970	-1.639	0.104678	
SYMPTOM_COUGH	0.163047	0.125655	1.298	0.197642	

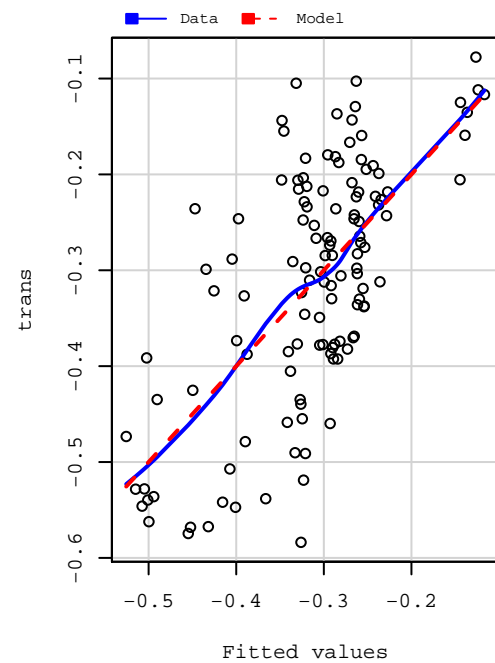
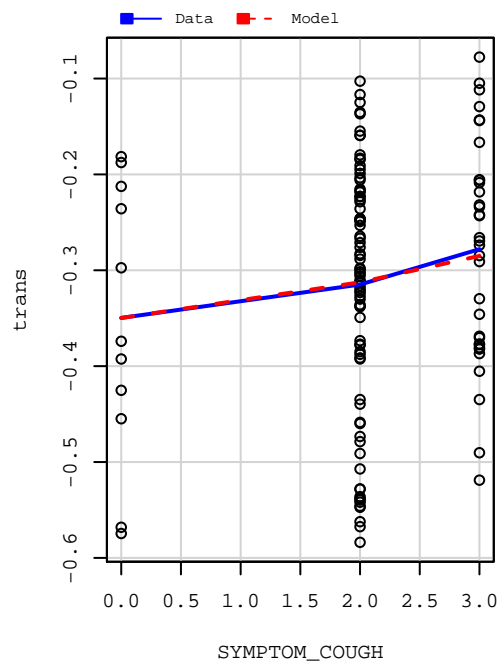
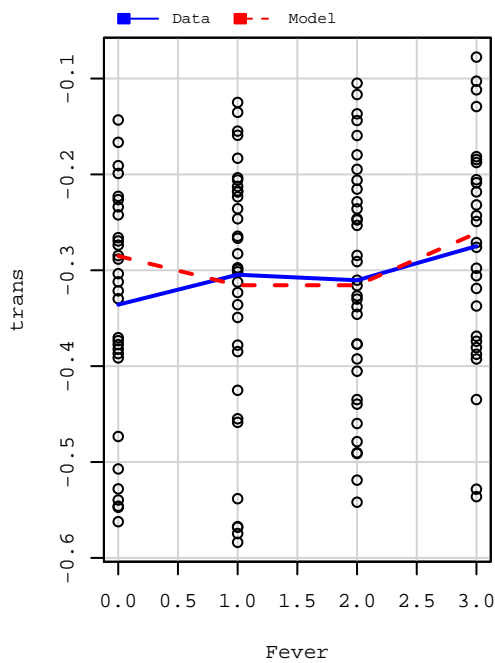
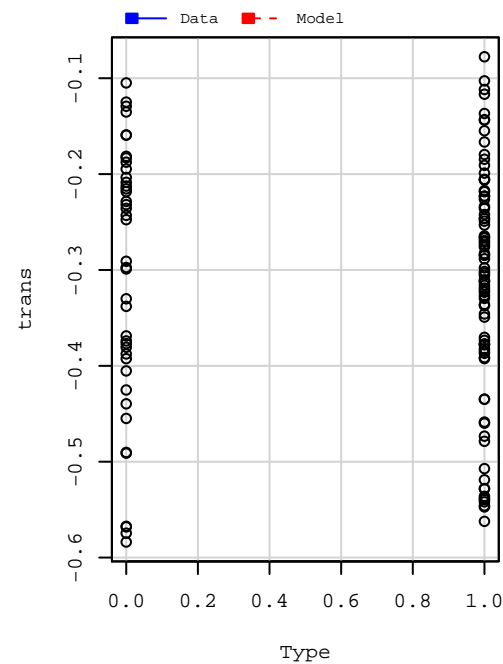
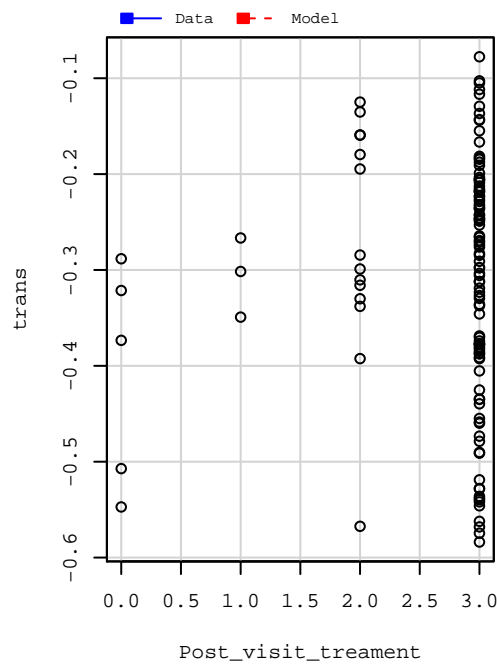
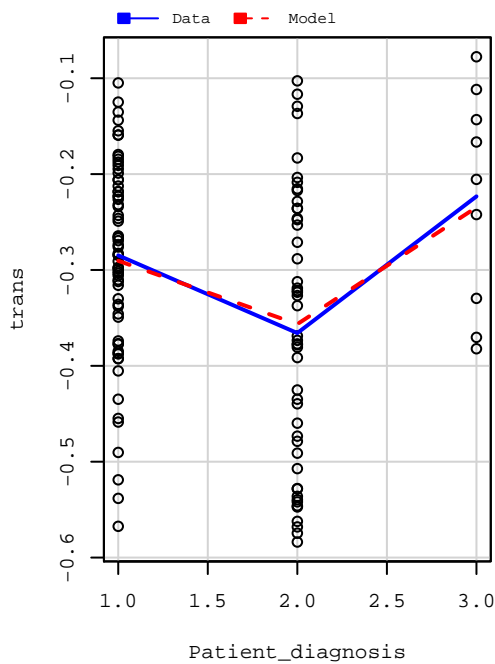
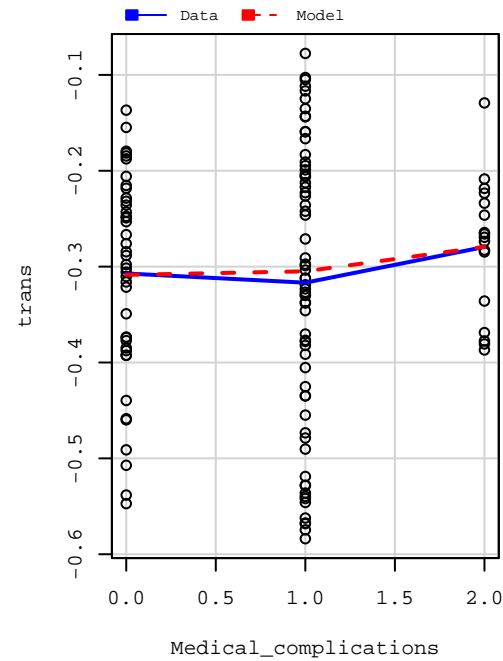
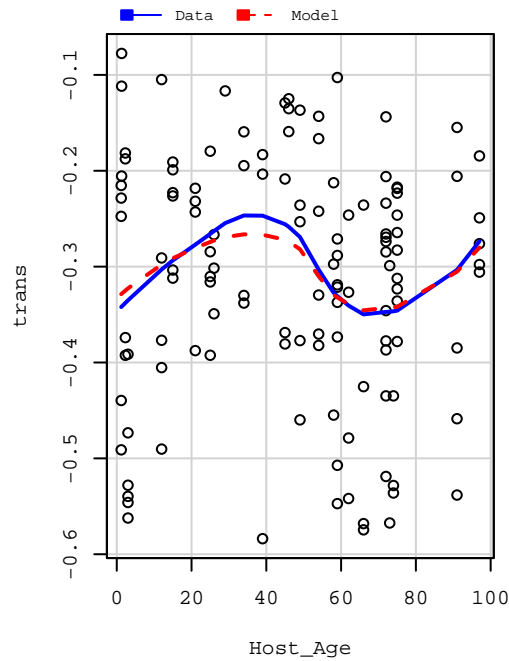
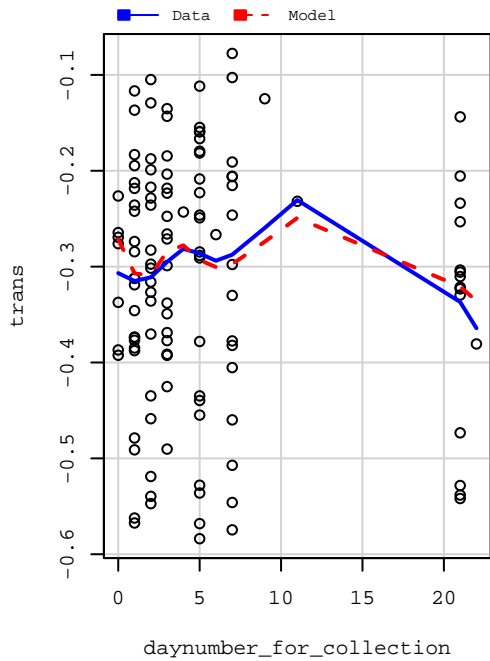
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Residual standard error: 0.1086 on 93 degrees of freedom

Multiple R-squared: 0.4477, Adjusted R-squared: 0.2695

F-statistic: 2.513 on 30 and 93 DF, p-value: 0.0004042

Marginal Model Plots



Multiple Regression for: Evenness

trans ~ Patient + daynumber_for_collection + Host_Age + Host_Gender + Medical_complications + F

Call:

```
lm(formula = as.formula(model_string), data = factors)
```

Residuals:

Min	1Q	Median	3Q	Max
-0.272393	-0.076460	-0.001224	0.072760	0.248552

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	-1.2488969	0.3692830	-3.382	0.00105	**
Patientp1	-0.4799744	0.7721090	-0.622	0.53570	
Patientp10	-0.2328669	0.8927605	-0.261	0.79479	
Patientp12	1.4547520	1.3065055	1.113	0.26838	
Patientp13	0.4745798	0.4546839	1.044	0.29930	
Patientp15	0.7981470	0.6821453	1.170	0.24497	
Patientp18	-0.1179403	0.4300058	-0.274	0.78448	
Patientp19	-0.1833508	0.7074369	-0.259	0.79607	
Patientp2	0.3045294	0.2455852	1.240	0.21809	
Patientp20	1.7476432	1.7739461	0.985	0.32710	
Patientp22	-0.0575781	0.2723884	-0.211	0.83305	
Patientp23	-0.2523509	0.6309901	-0.400	0.69013	
Patientp24	0.1146477	0.5373053	0.213	0.83150	
Patientp25	0.7724974	0.2350628	3.286	0.00143	**
Patientp28	1.2536852	1.1294544	1.110	0.26986	
Patientp3	0.7131217	0.4938334	1.444	0.15208	
Patientp31	1.1511005	0.6700789	1.718	0.08915	.
Patientp32	0.5375639	0.6540750	0.822	0.41325	
Patientp4	0.2721805	0.1299180	2.095	0.03889	*
Patientp6	0.8827402	0.5806962	1.520	0.13187	
Patientp9	0.5513071	0.2133632	2.584	0.01133	*
daynumber_for_collection	-0.0009303	0.0018466	-0.504	0.61558	
Host_Age	0.0028921	0.0034358	0.842	0.40208	
Host_GenderF	0.0666165	0.1010127	0.659	0.51121	
Medical_complications	0.5498743	0.6150747	0.894	0.37363	
Patient_diagnosis	0.4730230	0.5093601	0.929	0.35547	
Post_visit_treatment	-0.2680504	0.3814337	-0.703	0.48397	
Type	-0.4171690	0.4922949	-0.847	0.39895	
Vacc_statusY	0.1035401	0.6058872	0.171	0.86468	
Fever	-0.2429355	0.2735042	-0.888	0.37671	
SYMPTOM_COUGH	0.0780171	0.1380373	0.565	0.57331	

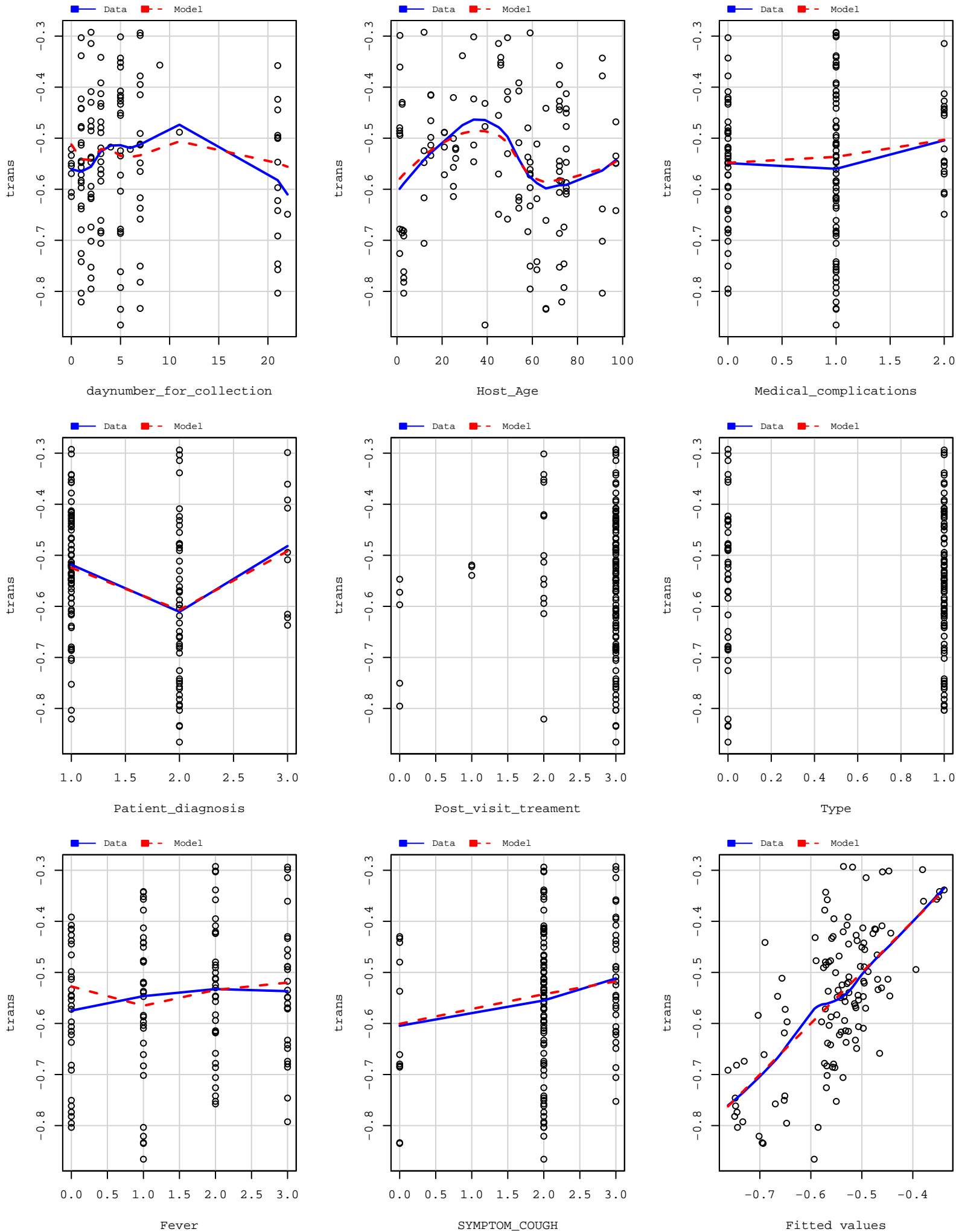
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.1193 on 93 degrees of freedom

Multiple R-squared: 0.4315, Adjusted R-squared: 0.248

F-statistic: 2.352 on 30 and 93 DF, p-value: 0.0009597

Marginal Model Plots



Multiple Regression for: SimpsonsRecip

trans ~ Patient + daynumber_for_collection + Host_Age + Host_Gender + Medical_complications + F

Call:

```
lm(formula = as.formula(model_string), data = factors)
```

Residuals:

	Min	1Q	Median	3Q	Max
	-0.91748	-0.28934	0.00451	0.21252	1.00030

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	-2.570374	1.249591	-2.057	0.042489	*
Patientp1	-3.078656	2.612686	-1.178	0.241664	
Patientp10	-1.888861	3.020950	-0.625	0.533336	
Patientp12	7.709735	4.420992	1.744	0.084482	.
Patientp13	2.802759	1.538573	1.822	0.071721	.
Patientp15	4.196043	2.308264	1.818	0.072309	.
Patientp18	-1.267166	1.455066	-0.871	0.386071	
Patientp19	-1.335912	2.393846	-0.558	0.578144	
Patientp2	0.970180	0.831018	1.167	0.246009	
Patientp20	9.895919	6.002732	1.649	0.102610	
Patientp22	-0.366008	0.921716	-0.397	0.692208	
Patientp23	-1.677953	2.135163	-0.786	0.433943	
Patientp24	-0.249401	1.818150	-0.137	0.891191	
Patientp25	3.198362	0.795412	4.021	0.000118	***
Patientp28	6.413323	3.821882	1.678	0.096694	.
Patientp3	3.402681	1.671048	2.036	0.044569	*
Patientp31	5.688786	2.267433	2.509	0.013841	*
Patientp32	3.187600	2.213279	1.440	0.153164	
Patientp4	1.134264	0.439620	2.580	0.011443	*
Patientp6	4.273275	1.964977	2.175	0.032188	*
Patientp9	2.327025	0.721985	3.223	0.001749	**
daynumber_for_collection	-0.005320	0.006249	-0.851	0.396722	
Host_Age	0.012500	0.011626	1.075	0.285103	
Host_GenderF	0.399808	0.341810	1.170	0.245119	
Medical_complications	3.160045	2.081308	1.518	0.132332	
Patient_diagnosis	2.668619	1.723588	1.548	0.124948	
Post_visit_treatment	-1.618839	1.290707	-1.254	0.212903	
Type	-2.269000	1.665842	-1.362	0.176465	
Vacc_statusY	1.340822	2.050219	0.654	0.514732	
Fever	-1.344650	0.925492	-1.453	0.149617	
SYMPTOM_COUGH	0.577498	0.467095	1.236	0.219437	

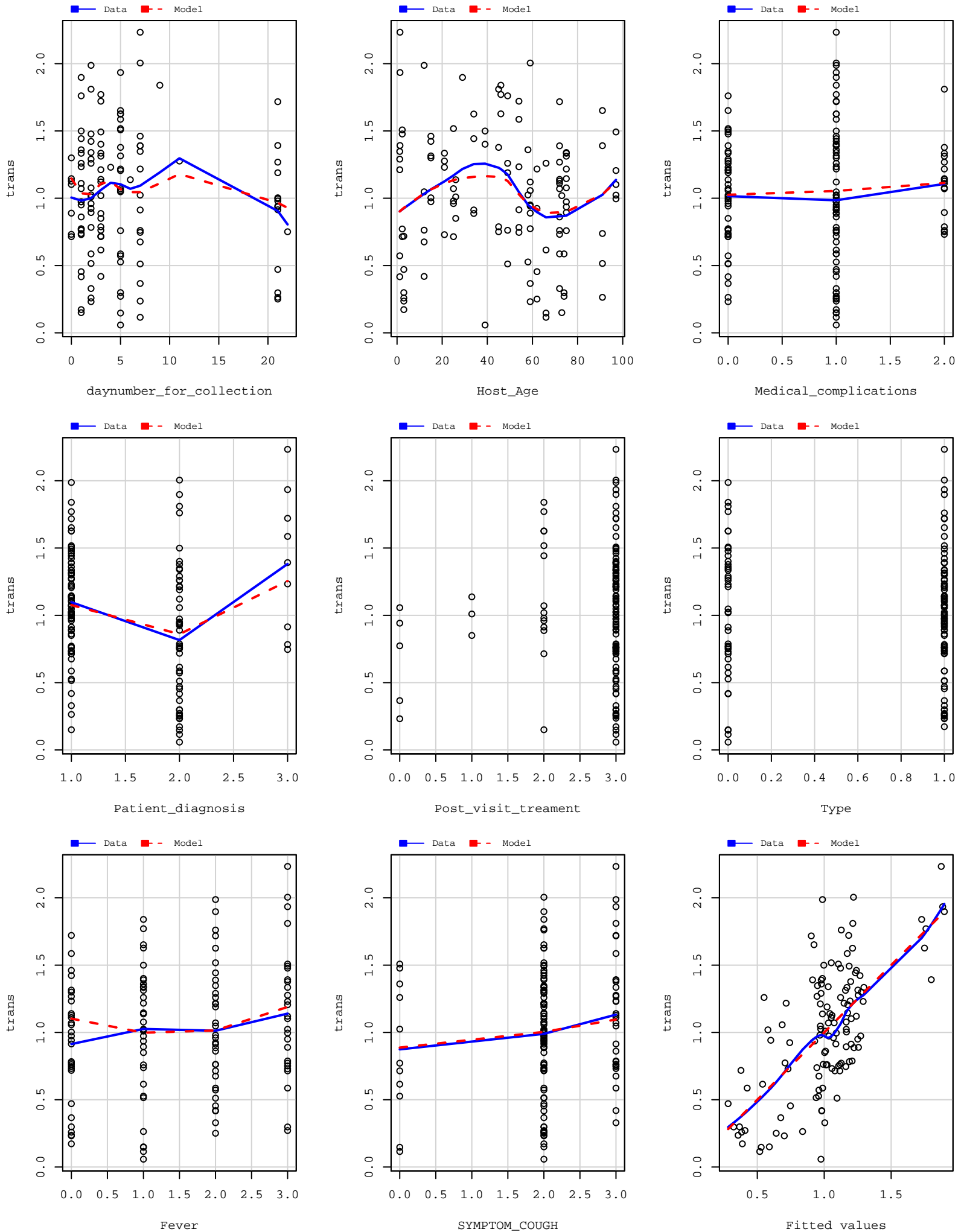
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.4036 on 93 degrees of freedom

Multiple R-squared: 0.4472, Adjusted R-squared: 0.2689

F-statistic: 2.508 on 30 and 93 DF, p-value: 0.0004141

Marginal Model Plots



R^2 Values

SimpsonsRecip

.45

.27

Evenness

.43

.25

Simpson

.45

.27

Shannon

.46

.29

Tail

.53

.37

R^2

Adj. R^2