

The Mixed Procedure

Model Information	
Data Set	WORK.MYDATA
Dependent Variable	height
Covariance Structure	Variance Components
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Containment

Class Level Information		
Class	Levels	Values
blocks	3	1 2 3
geo	10	1 2 3 4 5 6 7 8 9 10
origin	2	Intro Nat

Dimensions	
Covariance Parameters	3
Columns in X	31
Columns in Z	33
Subjects	1
Max Obs per Subject	219

Number of Observations	
Number of Observations Read	219
Number of Observations Used	219
Number of Observations Not Used	0

Iteration History			
Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	520.30964987	
1	3	496.43708618	0.00161453
2	1	496.32136202	0.00008499
3	1	496.31576547	0.00000030
4	1	496.31574609	0.00000000

Convergence criteria met.

The Mixed Procedure

Covariance Parameter Estimates	
Cov Parm	Estimate
blocks	0.2114
blocks*geo	0.08793
Residual	0.5215

Fit Statistics	
-2 Res Log Likelihood	496.3
AIC (Smaller is Better)	502.3
AICC (Smaller is Better)	502.4
BIC (Smaller is Better)	499.6

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
geo	9	10	3.83	0.0239
origin	1	189	0.09	0.7615
geo*origin	7	189	2.28	0.0301

Least Squares Means							
Effect	origin	geo	Estimate	Standard Error	DF	t Value	Pr > |t|
geo		1	Non-est	.	.	.	.
geo		2	4.1259	0.3611	10	11.43	<.0001
geo		3	3.2060	0.3693	10	8.68	<.0001
geo		4	3.0998	0.3782	10	8.20	<.0001
geo		5	2.9853	0.3611	10	8.27	<.0001
geo		6	4.1768	0.3643	10	11.47	<.0001
geo		7	Non-est	.	.	.	.
geo		8	3.2641	0.3586	10	9.10	<.0001
geo		9	3.6295	0.3701	10	9.81	<.0001
geo		10	3.7934	0.3651	10	10.39	<.0001
origin	Intro		Non-est	.	.	.	.
origin	Nat		Non-est	.	.	.	.
geo*origin	Nat	1	4.3246	0.3500	189	12.36	<.0001
geo*origin	Intro	2	3.6732	0.3962	189	9.27	<.0001
geo*origin	Nat	2	4.5786	0.5133	189	8.92	<.0001
geo*origin	Intro	3	3.7084	0.3991	189	9.29	<.0001

The Mixed Procedure

Least Squares Means							
Effect	origin	geo	Estimate	Standard Error	DF	t Value	Pr > |t|
geo*origin	Nat	3	2.7036	0.5340	189	5.06	<.0001
geo*origin	Intro	4	3.0360	0.4105	189	7.40	<.0001
geo*origin	Nat	4	3.1636	0.5500	189	5.75	<.0001
geo*origin	Intro	5	3.0536	0.5133	189	5.95	<.0001
geo*origin	Nat	5	2.9169	0.3962	189	7.36	<.0001
geo*origin	Intro	6	3.8179	0.5223	189	7.31	<.0001
geo*origin	Nat	6	4.5357	0.3962	189	11.45	<.0001
geo*origin	Intro	7	3.8247	0.3557	189	10.75	<.0001
geo*origin	Intro	8	3.6925	0.5062	189	7.30	<.0001
geo*origin	Nat	8	2.8357	0.3962	189	7.16	<.0001
geo*origin	Intro	9	3.2036	0.5340	189	6.00	<.0001
geo*origin	Nat	9	4.0553	0.4021	189	10.09	<.0001
geo*origin	Intro	10	3.8833	0.3991	189	9.73	<.0001
geo*origin	Nat	10	3.7036	0.5223	189	7.09	<.0001

The Mixed Procedure

Differences of Least Squares Means									
Effect	origin	geo	_origin	_geo	Estimate	Standard Error	DF	t Value	Pr > |t|
geo		1		2	Non-est	.	.	.	.
geo		1		3	Non-est	.	.	.	.
geo		1		4	Non-est	.	.	.	.
geo		1		5	Non-est	.	.	.	.
geo		1		6	Non-est	.	.	.	.
geo		1		7	Non-est	.	.	.	.
geo		1		8	Non-est	.	.	.	.
geo		1		9	Non-est	.	.	.	.
geo		1		10	Non-est	.	.	.	.
geo		2		3	0.9199	0.3476	10	2.65	0.0245
geo		2		4	1.0261	0.3571	10	2.87	0.0166
geo		2		5	1.1406	0.3389	10	3.37	0.0072
geo		2		6	-0.05089	0.3423	10	-0.15	0.8848
geo		2		7	Non-est	.	.	.	.
geo		2		8	0.8618	0.3362	10	2.56	0.0282
geo		2		9	0.4964	0.3485	10	1.42	0.1847
geo		2		10	0.3325	0.3431	10	0.97	0.3554
geo		3		4	0.1062	0.3654	10	0.29	0.7773
geo		3		5	0.2207	0.3476	10	0.63	0.5397
geo		3		6	-0.9708	0.3509	10	-2.77	0.0199
geo		3		7	Non-est	.	.	.	.
geo		3		8	-0.05811	0.3450	10	-0.17	0.8696
geo		3		9	-0.4235	0.3570	10	-1.19	0.2629
geo		3		10	-0.5874	0.3517	10	-1.67	0.1258
geo		4		5	0.1145	0.3571	10	0.32	0.7550
geo		4		6	-1.0770	0.3603	10	-2.99	0.0136
geo		4		7	Non-est	.	.	.	.
geo		4		8	-0.1643	0.3545	10	-0.46	0.6530
geo		4		9	-0.5297	0.3662	10	-1.45	0.1786
geo		4		10	-0.6936	0.3611	10	-1.92	0.0837
geo		5		6	-1.1915	0.3423	10	-3.48	0.0059
geo		5		7	Non-est	.	.	.	.
geo		5		8	-0.2788	0.3362	10	-0.83	0.4263
geo		5		9	-0.6442	0.3485	10	-1.85	0.0942
geo		5		10	-0.8082	0.3431	10	-2.36	0.0403

The Mixed Procedure

Differences of Least Squares Means									
Effect	origin	geo	_origin	_geo	Estimate	Standard Error	DF	t Value	Pr > |t|
geo		6		7	Non-est	.	.	.	.
geo		6		8	0.9127	0.3396	10	2.69	0.0228
geo		6		9	0.5473	0.3518	10	1.56	0.1508
geo		6		10	0.3834	0.3465	10	1.11	0.2945
geo		7		8	Non-est	.	.	.	.
geo		7		9	Non-est	.	.	.	.
geo		7		10	Non-est	.	.	.	.
geo		8		9	-0.3654	0.3459	10	-1.06	0.3156
geo		8		10	-0.5293	0.3405	10	-1.55	0.1511
geo		9		10	-0.1640	0.3526	10	-0.47	0.6519
origin	Intro		Nat		Non-est	.	.	.	.
geo*origin	Nat	1	Intro	2	0.6514	0.3728	189	1.75	0.0822
geo*origin	Nat	1	Nat	2	-0.2540	0.4942	189	-0.51	0.6078
geo*origin	Nat	1	Intro	3	0.6162	0.3758	189	1.64	0.1027
geo*origin	Nat	1	Nat	3	1.6210	0.5157	189	3.14	0.0019
geo*origin	Nat	1	Intro	4	1.2886	0.3879	189	3.32	0.0011
geo*origin	Nat	1	Nat	4	1.1610	0.5323	189	2.18	0.0304
geo*origin	Nat	1	Intro	5	1.2710	0.4942	189	2.57	0.0109
geo*origin	Nat	1	Nat	5	1.4076	0.3728	189	3.78	0.0002
geo*origin	Nat	1	Intro	6	0.5067	0.5035	189	1.01	0.3156
geo*origin	Nat	1	Nat	6	-0.2111	0.3728	189	-0.57	0.5718
geo*origin	Nat	1	Intro	7	0.4999	0.3288	189	1.52	0.1301
geo*origin	Nat	1	Intro	8	0.6321	0.4868	189	1.30	0.1957
geo*origin	Nat	1	Nat	8	1.4889	0.3728	189	3.99	<.0001
geo*origin	Nat	1	Intro	9	1.1210	0.5157	189	2.17	0.0310
geo*origin	Nat	1	Nat	9	0.2692	0.3789	189	0.71	0.4783
geo*origin	Nat	1	Intro	10	0.4413	0.3758	189	1.17	0.2417
geo*origin	Nat	1	Nat	10	0.6210	0.5035	189	1.23	0.2190
geo*origin	Intro	2	Nat	2	-0.9054	0.5651	189	-1.60	0.1108
geo*origin	Intro	2	Intro	3	-0.03517	0.3942	189	-0.09	0.9290
geo*origin	Intro	2	Nat	3	0.9696	0.5840	189	1.66	0.0985
geo*origin	Intro	2	Intro	4	0.6372	0.4058	189	1.57	0.1180
geo*origin	Intro	2	Nat	4	0.5096	0.5987	189	0.85	0.3958
geo*origin	Intro	2	Intro	5	0.6196	0.5651	189	1.10	0.2743
geo*origin	Intro	2	Nat	5	0.7563	0.3913	189	1.93	0.0548

The Mixed Procedure

Differences of Least Squares Means									
Effect	origin	geo	_origin	_geo	Estimate	Standard Error	DF	t Value	Pr > |t|
geo*origin	Intro	2	Intro	6	-0.1447	0.5733	189	-0.25	0.8010
geo*origin	Intro	2	Nat	6	-0.8625	0.3913	189	-2.20	0.0287
geo*origin	Intro	2	Intro	7	-0.1515	0.3742	189	-0.40	0.6861
geo*origin	Intro	2	Intro	8	-0.01930	0.5586	189	-0.03	0.9725
geo*origin	Intro	2	Nat	8	0.8375	0.3913	189	2.14	0.0336
geo*origin	Intro	2	Intro	9	0.4696	0.5840	189	0.80	0.4224
geo*origin	Intro	2	Nat	9	-0.3821	0.3972	189	-0.96	0.3372
geo*origin	Intro	2	Intro	10	-0.2101	0.3942	189	-0.53	0.5947
geo*origin	Intro	2	Nat	10	-0.03042	0.5733	189	-0.05	0.9577
geo*origin	Nat	2	Intro	3	0.8702	0.5671	189	1.53	0.1266
geo*origin	Nat	2	Nat	3	1.8750	0.5727	189	3.27	0.0013
geo*origin	Nat	2	Intro	4	1.5426	0.5752	189	2.68	0.0080
geo*origin	Nat	2	Nat	4	1.4150	0.5876	189	2.41	0.0170
geo*origin	Nat	2	Intro	5	1.5250	0.5534	189	2.76	0.0064
geo*origin	Nat	2	Nat	5	1.6617	0.5651	189	2.94	0.0037
geo*origin	Nat	2	Intro	6	0.7607	0.5617	189	1.35	0.1773
geo*origin	Nat	2	Nat	6	0.04292	0.5651	189	0.08	0.9395
geo*origin	Nat	2	Intro	7	0.7539	0.5041	189	1.50	0.1364
geo*origin	Nat	2	Intro	8	0.8861	0.5468	189	1.62	0.1068
geo*origin	Nat	2	Nat	8	1.7429	0.5651	189	3.08	0.0023
geo*origin	Nat	2	Intro	9	1.3750	0.5727	189	2.40	0.0173
geo*origin	Nat	2	Nat	9	0.5233	0.5692	189	0.92	0.3591
geo*origin	Nat	2	Intro	10	0.6953	0.5671	189	1.23	0.2217
geo*origin	Nat	2	Nat	10	0.8750	0.5617	189	1.56	0.1210
geo*origin	Intro	3	Nat	3	1.0048	0.5859	189	1.71	0.0880
geo*origin	Intro	3	Intro	4	0.6724	0.4086	189	1.65	0.1015
geo*origin	Intro	3	Nat	4	0.5448	0.6006	189	0.91	0.3655
geo*origin	Intro	3	Intro	5	0.6548	0.5671	189	1.15	0.2497
geo*origin	Intro	3	Nat	5	0.7914	0.3942	189	2.01	0.0461
geo*origin	Intro	3	Intro	6	-0.1095	0.5752	189	-0.19	0.8492
geo*origin	Intro	3	Nat	6	-0.8273	0.3942	189	-2.10	0.0372
geo*origin	Intro	3	Intro	7	-0.1163	0.3772	189	-0.31	0.7582
geo*origin	Intro	3	Intro	8	0.01586	0.5607	189	0.03	0.9775
geo*origin	Intro	3	Nat	8	0.8727	0.3942	189	2.21	0.0280
geo*origin	Intro	3	Intro	9	0.5048	0.5859	189	0.86	0.3901

The Mixed Procedure

Differences of Least Squares Means									
Effect	origin	geo	_origin	_geo	Estimate	Standard Error	DF	t Value	Pr > |t|
geo*origin	Intro	3	Nat	9	-0.3470	0.4000	189	-0.87	0.3868
geo*origin	Intro	3	Intro	10	-0.1749	0.3970	189	-0.44	0.6601
geo*origin	Intro	3	Nat	10	0.004753	0.5752	189	0.01	0.9934
geo*origin	Nat	3	Intro	4	-0.3324	0.5938	189	-0.56	0.5763
geo*origin	Nat	3	Nat	4	-0.4600	0.6058	189	-0.76	0.4486
geo*origin	Nat	3	Intro	5	-0.3500	0.5727	189	-0.61	0.5418
geo*origin	Nat	3	Nat	5	-0.2133	0.5840	189	-0.37	0.7153
geo*origin	Nat	3	Intro	6	-1.1143	0.5807	189	-1.92	0.0565
geo*origin	Nat	3	Nat	6	-1.8321	0.5840	189	-3.14	0.0020
geo*origin	Nat	3	Intro	7	-1.1211	0.5252	189	-2.13	0.0341
geo*origin	Nat	3	Intro	8	-0.9889	0.5663	189	-1.75	0.0824
geo*origin	Nat	3	Nat	8	-0.1321	0.5840	189	-0.23	0.8213
geo*origin	Nat	3	Intro	9	-0.5000	0.5913	189	-0.85	0.3989
geo*origin	Nat	3	Nat	9	-1.3517	0.5880	189	-2.30	0.0226
geo*origin	Nat	3	Intro	10	-1.1797	0.5859	189	-2.01	0.0455
geo*origin	Nat	3	Nat	10	-1.0000	0.5807	189	-1.72	0.0867
geo*origin	Intro	4	Nat	4	-0.1276	0.6082	189	-0.21	0.8340
geo*origin	Intro	4	Intro	5	-0.01761	0.5752	189	-0.03	0.9756
geo*origin	Intro	4	Nat	5	0.1191	0.4058	189	0.29	0.7695
geo*origin	Intro	4	Intro	6	-0.7819	0.5832	189	-1.34	0.1816
geo*origin	Intro	4	Nat	6	-1.4997	0.4058	189	-3.70	0.0003
geo*origin	Intro	4	Intro	7	-0.7887	0.3893	189	-2.03	0.0442
geo*origin	Intro	4	Intro	8	-0.6565	0.5688	189	-1.15	0.2499
geo*origin	Intro	4	Nat	8	0.2003	0.4058	189	0.49	0.6221
geo*origin	Intro	4	Intro	9	-0.1676	0.5938	189	-0.28	0.7780
geo*origin	Intro	4	Nat	9	-1.0193	0.4115	189	-2.48	0.0141
geo*origin	Intro	4	Intro	10	-0.8473	0.4086	189	-2.07	0.0395
geo*origin	Intro	4	Nat	10	-0.6676	0.5832	189	-1.14	0.2538
geo*origin	Nat	4	Intro	5	0.1100	0.5876	189	0.19	0.8517
geo*origin	Nat	4	Nat	5	0.2467	0.5987	189	0.41	0.6808
geo*origin	Nat	4	Intro	6	-0.6543	0.5955	189	-1.10	0.2733
geo*origin	Nat	4	Nat	6	-1.3721	0.5987	189	-2.29	0.0230
geo*origin	Nat	4	Intro	7	-0.6611	0.5415	189	-1.22	0.2237
geo*origin	Nat	4	Intro	8	-0.5289	0.5814	189	-0.91	0.3642
geo*origin	Nat	4	Nat	8	0.3279	0.5987	189	0.55	0.5845

The Mixed Procedure

Differences of Least Squares Means									
Effect	origin	geo	_origin	_geo	Estimate	Standard Error	DF	t Value	Pr > |t|
geo*origin	Nat	4	Intro	9	-0.04000	0.6058	189	-0.07	0.9474
geo*origin	Nat	4	Nat	9	-0.8917	0.6026	189	-1.48	0.1406
geo*origin	Nat	4	Intro	10	-0.7197	0.6006	189	-1.20	0.2323
geo*origin	Nat	4	Nat	10	-0.5400	0.5955	189	-0.91	0.3657
geo*origin	Intro	5	Nat	5	0.1367	0.5651	189	0.24	0.8092
geo*origin	Intro	5	Intro	6	-0.7643	0.5617	189	-1.36	0.1753
geo*origin	Intro	5	Nat	6	-1.4821	0.5651	189	-2.62	0.0094
geo*origin	Intro	5	Intro	7	-0.7711	0.5041	189	-1.53	0.1278
geo*origin	Intro	5	Intro	8	-0.6389	0.5468	189	-1.17	0.2441
geo*origin	Intro	5	Nat	8	0.2179	0.5651	189	0.39	0.7002
geo*origin	Intro	5	Intro	9	-0.1500	0.5727	189	-0.26	0.7937
geo*origin	Intro	5	Nat	9	-1.0017	0.5692	189	-1.76	0.0800
geo*origin	Intro	5	Intro	10	-0.8297	0.5671	189	-1.46	0.1451
geo*origin	Intro	5	Nat	10	-0.6500	0.5617	189	-1.16	0.2487
geo*origin	Nat	5	Intro	6	-0.9010	0.5733	189	-1.57	0.1177
geo*origin	Nat	5	Nat	6	-1.6188	0.3913	189	-4.14	<.0001
geo*origin	Nat	5	Intro	7	-0.9077	0.3742	189	-2.43	0.0162
geo*origin	Nat	5	Intro	8	-0.7756	0.5586	189	-1.39	0.1667
geo*origin	Nat	5	Nat	8	0.08125	0.3913	189	0.21	0.8357
geo*origin	Nat	5	Intro	9	-0.2867	0.5840	189	-0.49	0.6241
geo*origin	Nat	5	Nat	9	-1.1384	0.3972	189	-2.87	0.0046
geo*origin	Nat	5	Intro	10	-0.9663	0.3942	189	-2.45	0.0151
geo*origin	Nat	5	Nat	10	-0.7867	0.5733	189	-1.37	0.1716
geo*origin	Intro	6	Nat	6	-0.7178	0.5733	189	-1.25	0.2121
geo*origin	Intro	6	Intro	7	-0.00677	0.5132	189	-0.01	0.9895
geo*origin	Intro	6	Intro	8	0.1254	0.5552	189	0.23	0.8216
geo*origin	Intro	6	Nat	8	0.9822	0.5733	189	1.71	0.0883
geo*origin	Intro	6	Intro	9	0.6143	0.5807	189	1.06	0.2915
geo*origin	Intro	6	Nat	9	-0.2374	0.5773	189	-0.41	0.6813
geo*origin	Intro	6	Intro	10	-0.06537	0.5752	189	-0.11	0.9097
geo*origin	Intro	6	Nat	10	0.1143	0.5699	189	0.20	0.8413
geo*origin	Nat	6	Intro	7	0.7110	0.3742	189	1.90	0.0589
geo*origin	Nat	6	Intro	8	0.8432	0.5586	189	1.51	0.1329
geo*origin	Nat	6	Nat	8	1.7000	0.3913	189	4.34	<.0001
geo*origin	Nat	6	Intro	9	1.3321	0.5840	189	2.28	0.0237

The Mixed Procedure

Differences of Least Squares Means									
Effect	origin	geo	_origin	_geo	Estimate	Standard Error	DF	t Value	Pr > |t|
geo*origin	Nat	6	Nat	9	0.4804	0.3972	189	1.21	0.2280
geo*origin	Nat	6	Intro	10	0.6524	0.3942	189	1.66	0.0995
geo*origin	Nat	6	Nat	10	0.8321	0.5733	189	1.45	0.1483
geo*origin	Intro	7	Intro	8	0.1322	0.4968	189	0.27	0.7905
geo*origin	Intro	7	Nat	8	0.9890	0.3742	189	2.64	0.0089
geo*origin	Intro	7	Intro	9	0.6211	0.5252	189	1.18	0.2385
geo*origin	Intro	7	Nat	9	-0.2307	0.3804	189	-0.61	0.5450
geo*origin	Intro	7	Intro	10	-0.05859	0.3772	189	-0.16	0.8767
geo*origin	Intro	7	Nat	10	0.1211	0.5132	189	0.24	0.8138
geo*origin	Intro	8	Nat	8	0.8568	0.5586	189	1.53	0.1268
geo*origin	Intro	8	Intro	9	0.4889	0.5663	189	0.86	0.3891
geo*origin	Intro	8	Nat	9	-0.3628	0.5628	189	-0.64	0.5199
geo*origin	Intro	8	Intro	10	-0.1908	0.5607	189	-0.34	0.7341
geo*origin	Intro	8	Nat	10	-0.01111	0.5552	189	-0.02	0.9841
geo*origin	Nat	8	Intro	9	-0.3679	0.5840	189	-0.63	0.5295
geo*origin	Nat	8	Nat	9	-1.2196	0.3972	189	-3.07	0.0025
geo*origin	Nat	8	Intro	10	-1.0476	0.3942	189	-2.66	0.0085
geo*origin	Nat	8	Nat	10	-0.8679	0.5733	189	-1.51	0.1317
geo*origin	Intro	9	Nat	9	-0.8517	0.5880	189	-1.45	0.1491
geo*origin	Intro	9	Intro	10	-0.6797	0.5859	189	-1.16	0.2475
geo*origin	Intro	9	Nat	10	-0.5000	0.5807	189	-0.86	0.3903
geo*origin	Nat	9	Intro	10	0.1721	0.4000	189	0.43	0.6676
geo*origin	Nat	9	Nat	10	0.3517	0.5773	189	0.61	0.5431
geo*origin	Intro	10	Nat	10	0.1797	0.5752	189	0.31	0.7552