The Mixed Procedure

Model Information	
Data Set	WORK.MYDATA
Dependent Variable	stem_straightness
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_num	10	1 10 2 3 4 5 6 7 8 9
origin	2	Intro Nat

Dimensions	
Covariance Parameters	3
Columns in X	30
Columns in Z	33
Subjects	1
Max Obs per Subject	30

Number of Observations	
Number of Observations Read	120
Number of Observations Used	30
Number of Observations Not Used	90

Iteration History			
Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	39.72916705	
1	3	38.75610684	0.00090446
2	1	38.74862618	0.00003478
3	1	38.74836094	0.00000006
4	1	38.74836049	0.00000000

Convergence criteria met.

The Mixed Procedure

Covariance Parameter Estimates	
Cov Parm	Estimate
blocks	0.1119
blocks*geo_num	0.1013
Residual	0.4777

Fit Statistics	
-2 Res Log Likelihood	38.7
AIC (Smaller is Better)	44.7
AICC (Smaller is Better)	47.4
BIC (Smaller is Better)	42.0

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
geo_num	9	9	1.97	0.1632
origin	1	2	3.32	0.2102
geo_num*origin	6	2	0.42	0.8293

Least Squares Means							
Effect	geo_num	origin	Estimate	Standard Error	DF	t Value	Pr > |t|
geo_num	1		Non-est	.	.	.	.
geo_num	10		3.2732	0.5077	9	6.45	0.0001
geo_num	2		3.5232	0.5077	9	6.94	<.0001
geo_num	3		3.7732	0.5077	9	7.43	<.0001
geo_num	4		2.9680	0.4892	9	6.07	0.0002
geo_num	5		Non-est	.	.	.	.
geo_num	6		1.8381	0.4892	9	3.76	0.0045
geo_num	7		Non-est	.	.	.	.
geo_num	8		3.6297	0.5789	9	6.27	0.0001
geo_num	9		3.2732	0.5077	9	6.45	0.0001
origin		Intro	Non-est	.	.	.	.
origin		Nat	Non-est	.	.	.	.
geo_num*origin	1	Nat	3.6667	0.4799	2	7.64	0.0167
geo_num*origin	10	Intro	3.4535	0.5833	2	5.92	0.0274
geo_num*origin	10	Nat	3.0929	0.8186	2	3.78	0.0635
geo_num*origin	2	Intro	2.9535	0.5833	2	5.06	0.0369

The Mixed Procedure

Least Squares Means							
Effect	**geo_num**	**origin**	**Estimate**	**Standard Error**	**DF**	**t Value**	**Pr > |t|**
geo_num*origin	2	Nat	4.0929	0.8186	2	5.00	0.0378
geo_num*origin	3	Intro	3.4535	0.5833	2	5.92	0.0274
geo_num*origin	3	Nat	4.0929	0.8186	2	5.00	0.0378
geo_num*origin	4	Intro	2.8431	0.5161	2	5.51	0.0314
geo_num*origin	4	Nat	3.0929	0.8186	2	3.78	0.0635
geo_num*origin	5	Nat	2.9535	0.5833	2	5.06	0.0369
geo_num*origin	6	Intro	1.0929	0.8186	2	1.34	0.3135
geo_num*origin	6	Nat	2.5832	0.5161	2	5.01	0.0377
geo_num*origin	7	Intro	4.0000	0.4799	2	8.33	0.0141
geo_num*origin	8	Intro	3.0929	0.8186	2	3.78	0.0635
geo_num*origin	8	Nat	4.1665	0.8059	2	5.17	0.0354
geo_num*origin	9	Intro	3.0929	0.8186	2	3.78	0.0635
geo_num*origin	9	Nat	3.4535	0.5833	2	5.92	0.0274

The Mixed Procedure

Differences of Least Squares Means									
Effect	**geo_num**	**origin**	**_geo_num**	**_origin**	**Estimate**	**Standard Error**	**DF**	**t Value**	**Pr > |t|**
geo_num	1		10		Non-est	.	.	.	.
geo_num	1		2		Non-est	.	.	.	.
geo_num	1		3		Non-est	.	.	.	.
geo_num	1		4		Non-est	.	.	.	.
geo_num	1		5		0.7131	0.7042	9	1.01	0.3377
geo_num	1		6		Non-est	.	.	.	.
geo_num	1		7		Non-est	.	.	.	.
geo_num	1		8		Non-est	.	.	.	.
geo_num	1		9		Non-est	.	.	.	.
geo_num	10		2		-0.2500	0.6590	9	-0.38	0.7132
geo_num	10		3		-0.5000	0.6590	9	-0.76	0.4674
geo_num	10		4		0.3052	0.6448	9	0.47	0.6472
geo_num	10		5		Non-est	.	.	.	.
geo_num	10		6		1.4352	0.6448	9	2.23	0.0531
geo_num	10		7		Non-est	.	.	.	.
geo_num	10		8		-0.3565	0.7152	9	-0.50	0.6301
geo_num	10		9		-205E-17	0.6590	9	-0.00	1.0000
geo_num	2		3		-0.2500	0.6590	9	-0.38	0.7132
geo_num	2		4		0.5552	0.6448	9	0.86	0.4116
geo_num	2		5		Non-est	.	.	.	.
geo_num	2		6		1.6852	0.6448	9	2.61	0.0281
geo_num	2		7		Non-est	.	.	.	.
geo_num	2		8		-0.1065	0.7152	9	-0.15	0.8849
geo_num	2		9		0.2500	0.6590	9	0.38	0.7132
geo_num	3		4		0.8052	0.6448	9	1.25	0.2433
geo_num	3		5		Non-est	.	.	.	.
geo_num	3		6		1.9352	0.6448	9	3.00	0.0149
geo_num	3		7		Non-est	.	.	.	.
geo_num	3		8		0.1435	0.7152	9	0.20	0.8455
geo_num	3		9		0.5000	0.6590	9	0.76	0.4674
geo_num	4		5		Non-est	.	.	.	.
geo_num	4		6		1.1299	0.6298	9	1.79	0.1064
geo_num	4		7		Non-est	.	.	.	.
geo_num	4		8		-0.6617	0.7040	9	-0.94	0.3718
geo_num	4		9		-0.3052	0.6448	9	-0.47	0.6472

The Mixed Procedure

Effect	geo_num	origin	_geo_num	_origin	Estimate	Standard Error	DF	t Value	Pr > |t|
Differences of Least Squares Means									
geo_num	5		6		Non-est	.	.	.	.
geo_num	5		7		Non-est	.	.	.	.
geo_num	5		8		Non-est	.	.	.	.
geo_num	5		9		Non-est	.	.	.	.
geo_num	6		7		Non-est	.	.	.	.
geo_num	6		8		-1.7917	0.7040	9	-2.54	0.0315
geo_num	6		9		-1.4352	0.6448	9	-2.23	0.0531
geo_num	7		8		Non-est	.	.	.	.
geo_num	7		9		Non-est	.	.	.	.
geo_num	8		9		0.3565	0.7152	9	0.50	0.6301
origin		Intro		Nat	Non-est	.	.	.	.
geo_num*origin	1	Nat	10	Intro	0.2131	0.7042	2	0.30	0.7907
geo_num*origin	1	Nat	10	Nat	0.5737	0.9088	2	0.63	0.5923
geo_num*origin	1	Nat	2	Intro	0.7131	0.7042	2	1.01	0.4178
geo_num*origin	1	Nat	2	Nat	-0.4263	0.9088	2	-0.47	0.6852
geo_num*origin	1	Nat	3	Intro	0.2131	0.7042	2	0.30	0.7907
geo_num*origin	1	Nat	3	Nat	-0.4263	0.9088	2	-0.47	0.6852
geo_num*origin	1	Nat	4	Intro	0.8236	0.6497	2	1.27	0.3325
geo_num*origin	1	Nat	4	Nat	0.5737	0.9088	2	0.63	0.5923
geo_num*origin	1	Nat	5	Nat	0.7131	0.7042	2	1.01	0.4178
geo_num*origin	1	Nat	6	Intro	2.5737	0.9088	2	2.83	0.1053
geo_num*origin	1	Nat	6	Nat	1.0834	0.6497	2	1.67	0.2373
geo_num*origin	1	Nat	7	Intro	-0.3333	0.6213	2	-0.54	0.6453
geo_num*origin	1	Nat	8	Intro	0.5737	0.9088	2	0.63	0.5923
geo_num*origin	1	Nat	8	Nat	-0.4999	0.8973	2	-0.56	0.6335
geo_num*origin	1	Nat	9	Intro	0.5737	0.9088	2	0.63	0.5923
geo_num*origin	1	Nat	9	Nat	0.2131	0.7042	2	0.30	0.7907
geo_num*origin	10	Intro	10	Nat	0.3606	0.9948	2	0.36	0.7517
geo_num*origin	10	Intro	2	Intro	0.5000	0.7609	2	0.66	0.5786
geo_num*origin	10	Intro	2	Nat	-0.6394	0.9948	2	-0.64	0.5862
geo_num*origin	10	Intro	3	Intro	1.67E-16	0.7609	2	0.00	1.0000
geo_num*origin	10	Intro	3	Nat	-0.6394	0.9948	2	-0.64	0.5862
geo_num*origin	10	Intro	4	Intro	0.6105	0.7107	2	0.86	0.4809
geo_num*origin	10	Intro	4	Nat	0.3606	0.9948	2	0.36	0.7517
geo_num*origin	10	Intro	5	Nat	0.5000	0.7609	2	0.66	0.5786

The Mixed Procedure

Differences of Least Squares Means									
Effect	**geo_num**	**origin**	**_geo_num**	**_origin**	**Estimate**	**Standard Error**	**DF**	**t Value**	**Pr > |t|**
geo_num*origin	10	Intro	6	Intro	2.3606	0.9948	2	2.37	0.1410
geo_num*origin	10	Intro	6	Nat	0.8703	0.7107	2	1.22	0.3454
geo_num*origin	10	Intro	7	Intro	-0.5465	0.7042	2	-0.78	0.5190
geo_num*origin	10	Intro	8	Intro	0.3606	0.9948	2	0.36	0.7517
geo_num*origin	10	Intro	8	Nat	-0.7130	0.9425	2	-0.76	0.5283
geo_num*origin	10	Intro	9	Intro	0.3606	0.9948	2	0.36	0.7517
geo_num*origin	10	Intro	9	Nat	-999E-18	0.7609	2	-0.00	1.0000
geo_num*origin	10	Nat	2	Intro	0.1394	0.9948	2	0.14	0.9014
geo_num*origin	10	Nat	2	Nat	-1.0000	1.0761	2	-0.93	0.4509
geo_num*origin	10	Nat	3	Intro	-0.3606	0.9948	2	-0.36	0.7517
geo_num*origin	10	Nat	3	Nat	-1.0000	1.0761	2	-0.93	0.4509
geo_num*origin	10	Nat	4	Intro	0.2499	0.9569	2	0.26	0.8184
geo_num*origin	10	Nat	4	Nat	-211E-17	1.0761	2	-0.00	1.0000
geo_num*origin	10	Nat	5	Nat	0.1394	0.9948	2	0.14	0.9014
geo_num*origin	10	Nat	6	Intro	2.0000	1.0761	2	1.86	0.2042
geo_num*origin	10	Nat	6	Nat	0.5097	0.9569	2	0.53	0.6475
geo_num*origin	10	Nat	7	Intro	-0.9071	0.9088	2	-1.00	0.4234
geo_num*origin	10	Nat	8	Intro	-122E-17	1.0761	2	-0.00	1.0000
geo_num*origin	10	Nat	8	Nat	-1.0736	1.1397	2	-0.94	0.4456
geo_num*origin	10	Nat	9	Intro	-311E-17	1.0761	2	-0.00	1.0000
geo_num*origin	10	Nat	9	Nat	-0.3606	0.9948	2	-0.36	0.7517
geo_num*origin	2	Intro	2	Nat	-1.1394	0.9948	2	-1.15	0.3706
geo_num*origin	2	Intro	3	Intro	-0.5000	0.7609	2	-0.66	0.5786
geo_num*origin	2	Intro	3	Nat	-1.1394	0.9948	2	-1.15	0.3706
geo_num*origin	2	Intro	4	Intro	0.1105	0.7107	2	0.16	0.8908
geo_num*origin	2	Intro	4	Nat	-0.1394	0.9948	2	-0.14	0.9014
geo_num*origin	2	Intro	5	Nat	-111E-18	0.7609	2	-0.00	1.0000
geo_num*origin	2	Intro	6	Intro	1.8606	0.9948	2	1.87	0.2023
geo_num*origin	2	Intro	6	Nat	0.3703	0.7107	2	0.52	0.6543
geo_num*origin	2	Intro	7	Intro	-1.0465	0.7042	2	-1.49	0.2756
geo_num*origin	2	Intro	8	Intro	-0.1394	0.9948	2	-0.14	0.9014
geo_num*origin	2	Intro	8	Nat	-1.2130	0.9425	2	-1.29	0.3269
geo_num*origin	2	Intro	9	Intro	-0.1394	0.9948	2	-0.14	0.9014
geo_num*origin	2	Intro	9	Nat	-0.5000	0.7609	2	-0.66	0.5786
geo_num*origin	2	Nat	3	Intro	0.6394	0.9948	2	0.64	0.5862

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Differences of Least Squares Means								
Effect	**geo_num**	**origin**	**_geo_num**	**_origin**	**Estimate**	**Standard Error**	**DF**	**t Value**	**Pr > |t|**
geo_num*origin	2	Nat	3	Nat	1.11E-16	1.0761	2	0.00	1.0000
geo_num*origin	2	Nat	4	Intro	1.2499	0.9569	2	1.31	0.3215
geo_num*origin	2	Nat	4	Nat	1.0000	1.0761	2	0.93	0.4509
geo_num*origin	2	Nat	5	Nat	1.1394	0.9948	2	1.15	0.3706
geo_num*origin	2	Nat	6	Intro	3.0000	1.0761	2	2.79	0.1082
geo_num*origin	2	Nat	6	Nat	1.5097	0.9569	2	1.58	0.2554
geo_num*origin	2	Nat	7	Intro	0.09293	0.9088	2	0.10	0.9279
geo_num*origin	2	Nat	8	Intro	1.0000	1.0761	2	0.93	0.4509
geo_num*origin	2	Nat	8	Nat	-0.07362	1.1397	2	-0.06	0.9544
geo_num*origin	2	Nat	9	Intro	1.0000	1.0761	2	0.93	0.4509
geo_num*origin	2	Nat	9	Nat	0.6394	0.9948	2	0.64	0.5862
geo_num*origin	3	Intro	3	Nat	-0.6394	0.9948	2	-0.64	0.5862
geo_num*origin	3	Intro	4	Intro	0.6105	0.7107	2	0.86	0.4809
geo_num*origin	3	Intro	4	Nat	0.3606	0.9948	2	0.36	0.7517
geo_num*origin	3	Intro	5	Nat	0.5000	0.7609	2	0.66	0.5786
geo_num*origin	3	Intro	6	Intro	2.3606	0.9948	2	2.37	0.1410
geo_num*origin	3	Intro	6	Nat	0.8703	0.7107	2	1.22	0.3454
geo_num*origin	3	Intro	7	Intro	-0.5465	0.7042	2	-0.78	0.5190
geo_num*origin	3	Intro	8	Intro	0.3606	0.9948	2	0.36	0.7517
geo_num*origin	3	Intro	8	Nat	-0.7130	0.9425	2	-0.76	0.5283
geo_num*origin	3	Intro	9	Intro	0.3606	0.9948	2	0.36	0.7517
geo_num*origin	3	Intro	9	Nat	-117E-17	0.7609	2	-0.00	1.0000
geo_num*origin	3	Nat	4	Intro	1.2499	0.9569	2	1.31	0.3215
geo_num*origin	3	Nat	4	Nat	1.0000	1.0761	2	0.93	0.4509
geo_num*origin	3	Nat	5	Nat	1.1394	0.9948	2	1.15	0.3706
geo_num*origin	3	Nat	6	Intro	3.0000	1.0761	2	2.79	0.1082
geo_num*origin	3	Nat	6	Nat	1.5097	0.9569	2	1.58	0.2554
geo_num*origin	3	Nat	7	Intro	0.09293	0.9088	2	0.10	0.9279
geo_num*origin	3	Nat	8	Intro	1.0000	1.0761	2	0.93	0.4509
geo_num*origin	3	Nat	8	Nat	-0.07362	1.1397	2	-0.06	0.9544
geo_num*origin	3	Nat	9	Intro	1.0000	1.0761	2	0.93	0.4509
geo_num*origin	3	Nat	9	Nat	0.6394	0.9948	2	0.64	0.5862
geo_num*origin	4	Intro	4	Nat	-0.2499	0.9569	2	-0.26	0.8184
geo_num*origin	4	Intro	5	Nat	-0.1105	0.7107	2	-0.16	0.8908
geo_num*origin	4	Intro	6	Intro	1.7501	0.9569	2	1.83	0.2089

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Differences of Least Squares Means								
Effect	geo_num	origin	_geo_num	_origin	Estimate	Standard Error	DF	t Value	Pr > |t|
geo_num*origin	4	Intro	6	Nat	0.2599	0.6546	2	0.40	0.7298
geo_num*origin	4	Intro	7	Intro	-1.1569	0.6497	2	-1.78	0.2169
geo_num*origin	4	Intro	8	Intro	-0.2499	0.9569	2	-0.26	0.8184
geo_num*origin	4	Intro	8	Nat	-1.3235	0.9081	2	-1.46	0.2823
geo_num*origin	4	Intro	9	Intro	-0.2499	0.9569	2	-0.26	0.8184
geo_num*origin	4	Intro	9	Nat	-0.6105	0.7107	2	-0.86	0.4809
geo_num*origin	4	Nat	5	Nat	0.1394	0.9948	2	0.14	0.9014
geo_num*origin	4	Nat	6	Intro	2.0000	1.0761	2	1.86	0.2042
geo_num*origin	4	Nat	6	Nat	0.5097	0.9569	2	0.53	0.6475
geo_num*origin	4	Nat	7	Intro	-0.9071	0.9088	2	-1.00	0.4234
geo_num*origin	4	Nat	8	Intro	7.77E-16	1.0761	2	0.00	1.0000
geo_num*origin	4	Nat	8	Nat	-1.0736	1.1397	2	-0.94	0.4456
geo_num*origin	4	Nat	9	Intro	-999E-18	1.0761	2	-0.00	1.0000
geo_num*origin	4	Nat	9	Nat	-0.3606	0.9948	2	-0.36	0.7517
geo_num*origin	5	Nat	6	Intro	1.8606	0.9948	2	1.87	0.2023
geo_num*origin	5	Nat	6	Nat	0.3703	0.7107	2	0.52	0.6543
geo_num*origin	5	Nat	7	Intro	-1.0465	0.7042	2	-1.49	0.2756
geo_num*origin	5	Nat	8	Intro	-0.1394	0.9948	2	-0.14	0.9014
geo_num*origin	5	Nat	8	Nat	-1.2130	0.9425	2	-1.29	0.3269
geo_num*origin	5	Nat	9	Intro	-0.1394	0.9948	2	-0.14	0.9014
geo_num*origin	5	Nat	9	Nat	-0.5000	0.7609	2	-0.66	0.5786
geo_num*origin	6	Intro	6	Nat	-1.4903	0.9569	2	-1.56	0.2597
geo_num*origin	6	Intro	7	Intro	-2.9071	0.9088	2	-3.20	0.0854
geo_num*origin	6	Intro	8	Intro	-2.0000	1.0761	2	-1.86	0.2042
geo_num*origin	6	Intro	8	Nat	-3.0736	1.1397	2	-2.70	0.1144
geo_num*origin	6	Intro	9	Intro	-2.0000	1.0761	2	-1.86	0.2042
geo_num*origin	6	Intro	9	Nat	-2.3606	0.9948	2	-2.37	0.1410
geo_num*origin	6	Nat	7	Intro	-1.4168	0.6497	2	-2.18	0.1610
geo_num*origin	6	Nat	8	Intro	-0.5097	0.9569	2	-0.53	0.6475
geo_num*origin	6	Nat	8	Nat	-1.5833	0.9081	2	-1.74	0.2233
geo_num*origin	6	Nat	9	Intro	-0.5097	0.9569	2	-0.53	0.6475
geo_num*origin	6	Nat	9	Nat	-0.8703	0.7107	2	-1.22	0.3454
geo_num*origin	7	Intro	8	Intro	0.9071	0.9088	2	1.00	0.4234
geo_num*origin	7	Intro	8	Nat	-0.1665	0.8973	2	-0.19	0.8699
geo_num*origin	7	Intro	9	Intro	0.9071	0.9088	2	1.00	0.4234

The Mixed Procedure

Differences of Least Squares Means								
Effect	**geo_num**	**origin**	**_geo_num**	**_origin**	**Estimate**	**Standard Error**	**DF**	**t Value**	**Pr > |t|**
geo_num*origin	7	Intro	9	Nat	0.5465	0.7042	2	0.78	0.5190
geo_num*origin	8	Intro	8	Nat	-1.0736	1.1397	2	-0.94	0.4456
geo_num*origin	8	Intro	9	Intro	-189E-17	1.0761	2	-0.00	1.0000
geo_num*origin	8	Intro	9	Nat	-0.3606	0.9948	2	-0.36	0.7517
geo_num*origin	8	Nat	9	Intro	1.0736	1.1397	2	0.94	0.4456
geo_num*origin	8	Nat	9	Nat	0.7130	0.9425	2	0.76	0.5283
geo_num*origin	9	Intro	9	Nat	-0.3606	0.9948	2	-0.36	0.7517