

The Mixed Procedure

Model Information	
Data Set	WORK.MYDATA3
Dependent Variable	root_damage_severity
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 2 3 4 5 6 7 8 9 10
origin	2	Intro Nat

Dimensions	
Covariance Parameters	3
Columns in X	30
Columns in Z	33
Subjects	1
Max Obs per Subject	84

Number of Observations	
Number of Observations Read	240
Number of Observations Used	84
Number of Observations Not Used	156

Iteration History			
Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	-10.00727967	
1	1	-10.00727967	0.00000000

Convergence criteria met.

The Mixed Procedure

Covariance Parameter Estimates	
Cov Parm	Estimate
blocks	0
blocks*geo_num	0
Residual	0.03518

Fit Statistics	
-2 Res Log Likelihood	-10.0
AIC (Smaller is Better)	-8.0
AICC (Smaller is Better)	-7.9
BIC (Smaller is Better)	-8.9

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
geo_num	9	9	29.89	<.0001
origin	1	56	72.74	<.0001
geo_num*origin	6	56	35.95	<.0001

Least Squares Means							
Effect	origin	geo_num	Estimate	Standard Error	DF	t Value	Pr > |t|
geo_num		1	Non-est	.	.	.	.
geo_num		2	Non-est	.	.	.	.
geo_num		3	1.0000	0.06472	9	15.45	<.0001
geo_num		4	1.0000	0.1027	9	9.73	<.0001
geo_num		5	1.0000	0.07519	9	13.30	<.0001
geo_num		6	2.2500	0.07657	9	29.38	<.0001
geo_num		7	Non-est	.	.	.	.
geo_num		8	1.0000	0.06849	9	14.60	<.0001
geo_num		9	1.2500	0.07519	9	16.62	<.0001
geo_num		10	0.7500	0.07414	9	10.12	<.0001
origin	Intro		Non-est	.	.	.	.
origin	Nat		Non-est	.	.	.	.
geo_num*origin	Nat	1	1.0000	0.06252	56	15.99	<.0001
geo_num*origin	Intro	2	1.0000	0.06631	56	15.08	<.0001
geo_num*origin	Intro	3	1.0000	0.07089	56	14.11	<.0001
geo_num*origin	Nat	3	1.0000	0.1083	56	9.23	<.0001

The Mixed Procedure

Least Squares Means							
Effect	origin	geo_num	Estimate	Standard Error	DF	t Value	Pr > |t|
geo_num*origin	Intro	4	1.0000	0.08388	56	11.92	<.0001
geo_num*origin	Nat	4	1.0000	0.1876	56	5.33	<.0001
geo_num*origin	Intro	5	1.0000	0.1326	56	7.54	<.0001
geo_num*origin	Nat	5	1.0000	0.07089	56	14.11	<.0001
geo_num*origin	Intro	6	3.5000	0.1326	56	26.39	<.0001
geo_num*origin	Nat	6	1.0000	0.07657	56	13.06	<.0001
geo_num*origin	Intro	7	1.1429	0.07089	56	16.12	<.0001
geo_num*origin	Intro	8	1.0000	0.1083	56	9.23	<.0001
geo_num*origin	Nat	8	1.0000	0.08388	56	11.92	<.0001
geo_num*origin	Intro	9	1.5000	0.1326	56	11.31	<.0001
geo_num*origin	Nat	9	1.0000	0.07089	56	14.11	<.0001
geo_num*origin	Intro	10	1.0000	0.06631	56	15.08	<.0001
geo_num*origin	Nat	10	0.5000	0.1326	56	3.77	0.0004

The Mixed Procedure

Differences of Least Squares Means									
Effect	origin	geo_num	_origin	_geo_num	Estimate	Standard Error	DF	t Value	Pr > |t|
geo_num		1		2	Non-est	.	.	.	.
geo_num		1		3	Non-est	.	.	.	.
geo_num		1		4	Non-est	.	.	.	.
geo_num		1		5	Non-est	.	.	.	.
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		1		10	Non-est	.	.	.	.
geo_num		2		3	Non-est	.	.	.	.
geo_num		2		4	Non-est	.	.	.	.
geo_num		2		5	Non-est	.	.	.	.
geo_num		2		6	Non-est	.	.	.	.
geo_num		2		7	-0.1429	0.09707	9	-1.47	0.1752
geo_num		2		8	Non-est	.	.	.	.
geo_num		2		9	Non-est	.	.	.	.
geo_num		2		10	Non-est	.	.	.	.
geo_num		3		4	2.22E-16	0.1214	9	0.00	1.0000
geo_num		3		5	2.78E-16	0.09921	9	0.00	1.0000
geo_num		3		6	-1.2500	0.1003	9	-12.47	<.0001
geo_num		3		7	Non-est	.	.	.	.
geo_num		3		8	5.55E-17	0.09423	9	0.00	1.0000
geo_num		3		9	-0.2500	0.09921	9	-2.52	0.0328
geo_num		3		10	0.2500	0.09841	9	2.54	0.0317
geo_num		4		5	5.55E-17	0.1273	9	0.00	1.0000
geo_num		4		6	-1.2500	0.1281	9	-9.76	<.0001
geo_num		4		7	Non-est	.	.	.	.
geo_num		4		8	-167E-18	0.1235	9	-0.00	1.0000
geo_num		4		9	-0.2500	0.1273	9	-1.96	0.0812
geo_num		4		10	0.2500	0.1267	9	1.97	0.0799
geo_num		5		6	-1.2500	0.1073	9	-11.65	<.0001
geo_num		5		7	Non-est	.	.	.	.
geo_num		5		8	-222E-18	0.1017	9	-0.00	1.0000
geo_num		5		9	-0.2500	0.1063	9	-2.35	0.0432
geo_num		5		10	0.2500	0.1056	9	2.37	0.0421

The Mixed Procedure

Differences of Least Squares Means									
Effect	origin	geo_num	_origin	_geo_num	Estimate	Standard Error	DF	t Value	Pr > |t|
geo_num		6		7	Non-est	.	.	.	.
geo_num		6		8	1.2500	0.1027	9	12.17	<.0001
geo_num		6		9	1.0000	0.1073	9	9.32	<.0001
geo_num		6		10	1.5000	0.1066	9	14.07	<.0001
geo_num		7		8	Non-est	.	.	.	.
geo_num		7		9	Non-est	.	.	.	.
geo_num		7		10	Non-est	.	.	.	.
geo_num		8		9	-0.2500	0.1017	9	-2.46	0.0363
geo_num		8		10	0.2500	0.1009	9	2.48	0.0352
geo_num		9		10	0.5000	0.1056	9	4.73	0.0011
origin	Intro		Nat		Non-est	.	.	.	.
geo_num*origin	Nat	1	Intro	2	-243E-18	0.09114	56	-0.00	1.0000
geo_num*origin	Nat	1	Intro	3	-111E-18	0.09452	56	-0.00	1.0000
geo_num*origin	Nat	1	Nat	3	-333E-18	0.1250	56	-0.00	1.0000
geo_num*origin	Nat	1	Intro	4	-111E-18	0.1046	56	-0.00	1.0000
geo_num*origin	Nat	1	Nat	4	1.11E-16	0.1977	56	0.00	1.0000
geo_num*origin	Nat	1	Intro	5	1.11E-16	0.1466	56	0.00	1.0000
geo_num*origin	Nat	1	Nat	5	0	0.09452	56	0.00	1.0000
geo_num*origin	Nat	1	Intro	6	-2.5000	0.1466	56	-17.05	<.0001
geo_num*origin	Nat	1	Nat	6	-222E-18	0.09886	56	-0.00	1.0000
geo_num*origin	Nat	1	Intro	7	-0.1429	0.09452	56	-1.51	0.1363
geo_num*origin	Nat	1	Intro	8	0	0.1250	56	0.00	1.0000
geo_num*origin	Nat	1	Nat	8	-333E-18	0.1046	56	-0.00	1.0000
geo_num*origin	Nat	1	Intro	9	-0.5000	0.1466	56	-3.41	0.0012
geo_num*origin	Nat	1	Nat	9	-333E-18	0.09452	56	-0.00	1.0000
geo_num*origin	Nat	1	Intro	10	-444E-18	0.09114	56	-0.00	1.0000
geo_num*origin	Nat	1	Nat	10	0.5000	0.1466	56	3.41	0.0012
geo_num*origin	Intro	2	Intro	3	1.32E-16	0.09707	56	0.00	1.0000
geo_num*origin	Intro	2	Nat	3	-902E-19	0.1270	56	-0.00	1.0000
geo_num*origin	Intro	2	Intro	4	1.11E-16	0.1069	56	0.00	1.0000
geo_num*origin	Intro	2	Nat	4	3.33E-16	0.1989	56	0.00	1.0000
geo_num*origin	Intro	2	Intro	5	3.33E-16	0.1483	56	0.00	1.0000
geo_num*origin	Intro	2	Nat	5	2.43E-16	0.09707	56	0.00	1.0000
geo_num*origin	Intro	2	Intro	6	-2.5000	0.1483	56	-16.86	<.0001
geo_num*origin	Intro	2	Nat	6	0	0.1013	56	0.00	1.0000

The Mixed Procedure

Differences of Least Squares Means									
Effect	origin	geo_num	_origin	_geo_num	Estimate	Standard Error	DF	t Value	Pr > |t|
geo_num*origin	Intro	2	Intro	7	-0.1429	0.09707	56	-1.47	0.1467
geo_num*origin	Intro	2	Intro	8	2.22E-16	0.1270	56	0.00	1.0000
geo_num*origin	Intro	2	Nat	8	-111E-18	0.1069	56	-0.00	1.0000
geo_num*origin	Intro	2	Intro	9	-0.5000	0.1483	56	-3.37	0.0014
geo_num*origin	Intro	2	Nat	9	-902E-19	0.09707	56	-0.00	1.0000
geo_num*origin	Intro	2	Intro	10	-201E-18	0.09378	56	-0.00	1.0000
geo_num*origin	Intro	2	Nat	10	0.5000	0.1483	56	3.37	0.0014
geo_num*origin	Intro	3	Nat	3	-222E-18	0.1294	56	-0.00	1.0000
geo_num*origin	Intro	3	Intro	4	0	0.1098	56	0.00	1.0000
geo_num*origin	Intro	3	Nat	4	2.22E-16	0.2005	56	0.00	1.0000
geo_num*origin	Intro	3	Intro	5	2.22E-16	0.1504	56	0.00	1.0000
geo_num*origin	Intro	3	Nat	5	1.11E-16	0.1003	56	0.00	1.0000
geo_num*origin	Intro	3	Intro	6	-2.5000	0.1504	56	-16.62	<.0001
geo_num*origin	Intro	3	Nat	6	-111E-18	0.1044	56	-0.00	1.0000
geo_num*origin	Intro	3	Intro	7	-0.1429	0.1003	56	-1.42	0.1597
geo_num*origin	Intro	3	Intro	8	1.11E-16	0.1294	56	0.00	1.0000
geo_num*origin	Intro	3	Nat	8	-222E-18	0.1098	56	-0.00	1.0000
geo_num*origin	Intro	3	Intro	9	-0.5000	0.1504	56	-3.32	0.0016
geo_num*origin	Intro	3	Nat	9	-222E-18	0.1003	56	-0.00	1.0000
geo_num*origin	Intro	3	Intro	10	-333E-18	0.09707	56	-0.00	1.0000
geo_num*origin	Intro	3	Nat	10	0.5000	0.1504	56	3.32	0.0016
geo_num*origin	Nat	3	Intro	4	2.22E-16	0.1370	56	0.00	1.0000
geo_num*origin	Nat	3	Nat	4	4.44E-16	0.2166	56	0.00	1.0000
geo_num*origin	Nat	3	Intro	5	4.44E-16	0.1712	56	0.00	1.0000
geo_num*origin	Nat	3	Nat	5	3.33E-16	0.1294	56	0.00	1.0000
geo_num*origin	Nat	3	Intro	6	-2.5000	0.1712	56	-14.60	<.0001
geo_num*origin	Nat	3	Nat	6	1.11E-16	0.1326	56	0.00	1.0000
geo_num*origin	Nat	3	Intro	7	-0.1429	0.1294	56	-1.10	0.2744
geo_num*origin	Nat	3	Intro	8	3.33E-16	0.1531	56	0.00	1.0000
geo_num*origin	Nat	3	Nat	8	0	0.1370	56	0.00	1.0000
geo_num*origin	Nat	3	Intro	9	-0.5000	0.1712	56	-2.92	0.0050
geo_num*origin	Nat	3	Nat	9	0	0.1294	56	0.00	1.0000
geo_num*origin	Nat	3	Intro	10	-111E-18	0.1270	56	-0.00	1.0000
geo_num*origin	Nat	3	Nat	10	0.5000	0.1712	56	2.92	0.0050
geo_num*origin	Intro	4	Nat	4	2.22E-16	0.2055	56	0.00	1.0000

The Mixed Procedure

Differences of Least Squares Means									
Effect	origin	geo_num	_origin	_geo_num	Estimate	Standard Error	DF	t Value	Pr > |t|
geo_num*origin	Intro	4	Intro	5	2.22E-16	0.1569	56	0.00	1.0000
geo_num*origin	Intro	4	Nat	5	1.11E-16	0.1098	56	0.00	1.0000
geo_num*origin	Intro	4	Intro	6	-2.5000	0.1569	56	-15.93	<.0001
geo_num*origin	Intro	4	Nat	6	-111E-18	0.1136	56	-0.00	1.0000
geo_num*origin	Intro	4	Intro	7	-0.1429	0.1098	56	-1.30	0.1987
geo_num*origin	Intro	4	Intro	8	1.11E-16	0.1370	56	0.00	1.0000
geo_num*origin	Intro	4	Nat	8	-222E-18	0.1186	56	-0.00	1.0000
geo_num*origin	Intro	4	Intro	9	-0.5000	0.1569	56	-3.19	0.0024
geo_num*origin	Intro	4	Nat	9	-222E-18	0.1098	56	-0.00	1.0000
geo_num*origin	Intro	4	Intro	10	-333E-18	0.1069	56	-0.00	1.0000
geo_num*origin	Intro	4	Nat	10	0.5000	0.1569	56	3.19	0.0024
geo_num*origin	Nat	4	Intro	5	0	0.2297	56	0.00	1.0000
geo_num*origin	Nat	4	Nat	5	-111E-18	0.2005	56	-0.00	1.0000
geo_num*origin	Nat	4	Intro	6	-2.5000	0.2297	56	-10.88	<.0001
geo_num*origin	Nat	4	Nat	6	-333E-18	0.2026	56	-0.00	1.0000
geo_num*origin	Nat	4	Intro	7	-0.1429	0.2005	56	-0.71	0.4791
geo_num*origin	Nat	4	Intro	8	-111E-18	0.2166	56	-0.00	1.0000
geo_num*origin	Nat	4	Nat	8	-444E-18	0.2055	56	-0.00	1.0000
geo_num*origin	Nat	4	Intro	9	-0.5000	0.2297	56	-2.18	0.0337
geo_num*origin	Nat	4	Nat	9	-444E-18	0.2005	56	-0.00	1.0000
geo_num*origin	Nat	4	Intro	10	-555E-18	0.1989	56	-0.00	1.0000
geo_num*origin	Nat	4	Nat	10	0.5000	0.2297	56	2.18	0.0337
geo_num*origin	Intro	5	Nat	5	-111E-18	0.1504	56	-0.00	1.0000
geo_num*origin	Intro	5	Intro	6	-2.5000	0.1876	56	-13.33	<.0001
geo_num*origin	Intro	5	Nat	6	-333E-18	0.1531	56	-0.00	1.0000
geo_num*origin	Intro	5	Intro	7	-0.1429	0.1504	56	-0.95	0.3462
geo_num*origin	Intro	5	Intro	8	-111E-18	0.1712	56	-0.00	1.0000
geo_num*origin	Intro	5	Nat	8	-444E-18	0.1569	56	-0.00	1.0000
geo_num*origin	Intro	5	Intro	9	-0.5000	0.1876	56	-2.67	0.0100
geo_num*origin	Intro	5	Nat	9	-444E-18	0.1504	56	-0.00	1.0000
geo_num*origin	Intro	5	Intro	10	-555E-18	0.1483	56	-0.00	1.0000
geo_num*origin	Intro	5	Nat	10	0.5000	0.1876	56	2.67	0.0100
geo_num*origin	Nat	5	Intro	6	-2.5000	0.1504	56	-16.62	<.0001
geo_num*origin	Nat	5	Nat	6	-222E-18	0.1044	56	-0.00	1.0000
geo_num*origin	Nat	5	Intro	7	-0.1429	0.1003	56	-1.42	0.1597

The Mixed Procedure

Differences of Least Squares Means									
Effect	origin	geo_num	_origin	_geo_num	Estimate	Standard Error	DF	t Value	Pr > |t|
geo_num*origin	Nat	5	Intro	8	0	0.1294	56	0.00	1.0000
geo_num*origin	Nat	5	Nat	8	-333E-18	0.1098	56	-0.00	1.0000
geo_num*origin	Nat	5	Intro	9	-0.5000	0.1504	56	-3.32	0.0016
geo_num*origin	Nat	5	Nat	9	-333E-18	0.1003	56	-0.00	1.0000
geo_num*origin	Nat	5	Intro	10	-444E-18	0.09707	56	-0.00	1.0000
geo_num*origin	Nat	5	Nat	10	0.5000	0.1504	56	3.32	0.0016
geo_num*origin	Intro	6	Nat	6	2.5000	0.1531	56	16.32	<.0001
geo_num*origin	Intro	6	Intro	7	2.3571	0.1504	56	15.67	<.0001
geo_num*origin	Intro	6	Intro	8	2.5000	0.1712	56	14.60	<.0001
geo_num*origin	Intro	6	Nat	8	2.5000	0.1569	56	15.93	<.0001
geo_num*origin	Intro	6	Intro	9	2.0000	0.1876	56	10.66	<.0001
geo_num*origin	Intro	6	Nat	9	2.5000	0.1504	56	16.62	<.0001
geo_num*origin	Intro	6	Intro	10	2.5000	0.1483	56	16.86	<.0001
geo_num*origin	Intro	6	Nat	10	3.0000	0.1876	56	15.99	<.0001
geo_num*origin	Nat	6	Intro	7	-0.1429	0.1044	56	-1.37	0.1765
geo_num*origin	Nat	6	Intro	8	2.22E-16	0.1326	56	0.00	1.0000
geo_num*origin	Nat	6	Nat	8	-111E-18	0.1136	56	-0.00	1.0000
geo_num*origin	Nat	6	Intro	9	-0.5000	0.1531	56	-3.26	0.0019
geo_num*origin	Nat	6	Nat	9	-111E-18	0.1044	56	-0.00	1.0000
geo_num*origin	Nat	6	Intro	10	-222E-18	0.1013	56	-0.00	1.0000
geo_num*origin	Nat	6	Nat	10	0.5000	0.1531	56	3.26	0.0019
geo_num*origin	Intro	7	Intro	8	0.1429	0.1294	56	1.10	0.2744
geo_num*origin	Intro	7	Nat	8	0.1429	0.1098	56	1.30	0.1987
geo_num*origin	Intro	7	Intro	9	-0.3571	0.1504	56	-2.37	0.0210
geo_num*origin	Intro	7	Nat	9	0.1429	0.1003	56	1.42	0.1597
geo_num*origin	Intro	7	Intro	10	0.1429	0.09707	56	1.47	0.1467
geo_num*origin	Intro	7	Nat	10	0.6429	0.1504	56	4.27	<.0001
geo_num*origin	Intro	8	Nat	8	-333E-18	0.1370	56	-0.00	1.0000
geo_num*origin	Intro	8	Intro	9	-0.5000	0.1712	56	-2.92	0.0050
geo_num*origin	Intro	8	Nat	9	-333E-18	0.1294	56	-0.00	1.0000
geo_num*origin	Intro	8	Intro	10	-444E-18	0.1270	56	-0.00	1.0000
geo_num*origin	Intro	8	Nat	10	0.5000	0.1712	56	2.92	0.0050
geo_num*origin	Nat	8	Intro	9	-0.5000	0.1569	56	-3.19	0.0024
geo_num*origin	Nat	8	Nat	9	0	0.1098	56	0.00	1.0000
geo_num*origin	Nat	8	Intro	10	-111E-18	0.1069	56	-0.00	1.0000

The Mixed Procedure

Differences of Least Squares Means									
Effect	origin	geo_num	_origin	_geo_num	Estimate	Standard Error	DF	t Value	Pr > |t|
geo_num*origin	Nat	8	Nat	10	0.5000	0.1569	56	3.19	0.0024
geo_num*origin	Intro	9	Nat	9	0.5000	0.1504	56	3.32	0.0016
geo_num*origin	Intro	9	Intro	10	0.5000	0.1483	56	3.37	0.0014
geo_num*origin	Intro	9	Nat	10	1.0000	0.1876	56	5.33	<.0001
geo_num*origin	Nat	9	Intro	10	-111E-18	0.09707	56	-0.00	1.0000
geo_num*origin	Nat	9	Nat	10	0.5000	0.1504	56	3.32	0.0016
geo_num*origin	Intro	10	Nat	10	0.5000	0.1483	56	3.37	0.0014