

## The Mixed Procedure

Model Information	
Data Set	WORK.MYDATA
Dependent Variable	root_damage
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	29
Columns in Z	33
Subjects	1
Max Obs per Subject	29

Number of Observations	
Number of Observations Read	120
Number of Observations Used	29
Number of Observations Not Used	91

Iteration History			
Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	59.36367818	
1	1	59.36367818	0.00000000

Convergence criteria met.

## The Mixed Procedure

Covariance Parameter Estimates	
Cov Parm	Estimate
blocks	0
blocks*geo_num	0
Residual	3.0769

Fit Statistics	
-2 Res Log Likelihood	59.4
AIC (Smaller is Better)	61.4
AICC (Smaller is Better)	61.7
BIC (Smaller is Better)	60.5

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
geo_num	9	9	0.79	0.6335
origin	1	2	0.39	0.5943
geo_num*origin	5	2	2.36	0.3237

Least Squares Means							
Effect	geo_num	origin	Estimate	Standard Error	DF	t Value	Pr >  t
geo_num	1		Non-est	.	.	.	.
geo_num	10		Non-est	.	.	.	.
geo_num	2		3.0000	1.0742	9	2.79	0.0210
geo_num	3		3.0000	1.0742	9	2.79	0.0210
geo_num	4		1.6667	1.0127	9	1.65	0.1342
geo_num	5		Non-est	.	.	.	.
geo_num	6		3.0000	1.0127	9	2.96	0.0159
geo_num	7		Non-est	.	.	.	.
geo_num	8		1.0000	1.2403	9	0.81	0.4409
geo_num	9		2.0000	1.0742	9	1.86	0.0955
origin		Intro	Non-est	.	.	.	.
origin		Nat	Non-est	.	.	.	.
geo_num*origin	1	Nat	2.3333	1.0127	2	2.30	0.1477
geo_num*origin	10	Intro	5.0000	1.2403	2	4.03	0.0564
geo_num*origin	2	Intro	5.0000	1.2403	2	4.03	0.0564
geo_num*origin	2	Nat	1.0000	1.7541	2	0.57	0.6261

## The Mixed Procedure

Least Squares Means							
Effect	geo_num	origin	Estimate	Standard Error	DF	t Value	Pr >  t
geo_num*origin	3	Intro	5.0000	1.2403	2	4.03	0.0564
geo_num*origin	3	Nat	1.0000	1.7541	2	0.57	0.6261
geo_num*origin	4	Intro	2.3333	1.0127	2	2.30	0.1477
geo_num*origin	4	Nat	1.0000	1.7541	2	0.57	0.6261
geo_num*origin	5	Nat	1.0000	1.2403	2	0.81	0.5047
geo_num*origin	6	Intro	1.0000	1.7541	2	0.57	0.6261
geo_num*origin	6	Nat	5.0000	1.0127	2	4.94	0.0387
geo_num*origin	7	Intro	2.3333	1.0127	2	2.30	0.1477
geo_num*origin	8	Intro	1.0000	1.7541	2	0.57	0.6261
geo_num*origin	8	Nat	1.0000	1.7541	2	0.57	0.6261
geo_num*origin	9	Intro	1.0000	1.7541	2	0.57	0.6261
geo_num*origin	9	Nat	3.0000	1.2403	2	2.42	0.1367

## 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		1.3333	1.6013	9	0.83	0.4266
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		Non-est	.	.	.	.
geo_num	10		3		Non-est	.	.	.	.
geo_num	10		4		Non-est	.	.	.	.
geo_num	10		5		Non-est	.	.	.	.
geo_num	10		6		Non-est	.	.	.	.
geo_num	10		7		2.6667	1.6013	9	1.67	0.1302
geo_num	10		8		Non-est	.	.	.	.
geo_num	10		9		Non-est	.	.	.	.
geo_num	2		3		-888E-18	1.5191	9	-0.00	1.0000
geo_num	2		4		1.3333	1.4763	9	0.90	0.3900
geo_num	2		5		Non-est	.	.	.	.
geo_num	2		6		-133E-17	1.4763	9	-0.00	1.0000
geo_num	2		7		Non-est	.	.	.	.
geo_num	2		8		2.0000	1.6408	9	1.22	0.2539
geo_num	2		9		1.0000	1.5191	9	0.66	0.5268
geo_num	3		4		1.3333	1.4763	9	0.90	0.3900
geo_num	3		5		Non-est	.	.	.	.
geo_num	3		6		0	1.4763	9	0.00	1.0000
geo_num	3		7		Non-est	.	.	.	.
geo_num	3		8		2.0000	1.6408	9	1.22	0.2539
geo_num	3		9		1.0000	1.5191	9	0.66	0.5268
geo_num	4		5		Non-est	.	.	.	.
geo_num	4		6		-1.3333	1.4322	9	-0.93	0.3762
geo_num	4		7		Non-est	.	.	.	.
geo_num	4		8		0.6667	1.6013	9	0.42	0.6869
geo_num	4		9		-0.3333	1.4763	9	-0.23	0.8264

## 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	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		2.0000	1.6013	9	1.25	0.2432
geo_num	6		9		1.0000	1.4763	9	0.68	0.5152
geo_num	7		8		Non-est	.	.	.	.
geo_num	7		9		Non-est	.	.	.	.
geo_num	8		9		-1.0000	1.6408	9	-0.61	0.5573
origin		Intro		Nat	Non-est	.	.	.	.
geo_num*origin	1	Nat	10	Intro	-2.6667	1.6013	2	-1.67	0.2378
geo_num*origin	1	Nat	2	Intro	-2.6667	1.6013	2	-1.67	0.2378
geo_num*origin	1	Nat	2	Nat	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	1	Nat	3	Intro	-2.6667	1.6013	2	-1.67	0.2378
geo_num*origin	1	Nat	3	Nat	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	1	Nat	4	Intro	8.88E-16	1.4322	2	0.00	1.0000
geo_num*origin	1	Nat	4	Nat	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	1	Nat	5	Nat	1.3333	1.6013	2	0.83	0.4926
geo_num*origin	1	Nat	6	Intro	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	1	Nat	6	Nat	-2.6667	1.4322	2	-1.86	0.2037
geo_num*origin	1	Nat	7	Intro	4.44E-16	1.4322	2	0.00	1.0000
geo_num*origin	1	Nat	8	Intro	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	1	Nat	8	Nat	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	1	Nat	9	Intro	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	1	Nat	9	Nat	-0.6667	1.6013	2	-0.42	0.7176
geo_num*origin	10	Intro	2	Intro	8.88E-16	1.7541	2	0.00	1.0000
geo_num*origin	10	Intro	2	Nat	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	10	Intro	3	Intro	8.88E-16	1.7541	2	0.00	1.0000
geo_num*origin	10	Intro	3	Nat	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	10	Intro	4	Intro	2.6667	1.6013	2	1.67	0.2378
geo_num*origin	10	Intro	4	Nat	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	10	Intro	5	Nat	4.0000	1.7541	2	2.28	0.1502
geo_num*origin	10	Intro	6	Intro	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	10	Intro	6	Nat	4.44E-16	1.6013	2	0.00	1.0000

## 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	7	Intro	2.6667	1.6013	2	1.67	0.2378
geo_num*origin	10	Intro	8	Intro	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	10	Intro	8	Nat	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	10	Intro	9	Intro	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	10	Intro	9	Nat	2.0000	1.7541	2	1.14	0.3724
geo_num*origin	2	Intro	2	Nat	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	2	Intro	3	Intro	0	1.7541	2	0.00	1.0000
geo_num*origin	2	Intro	3	Nat	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	2	Intro	4	Intro	2.6667	1.6013	2	1.67	0.2378
geo_num*origin	2	Intro	4	Nat	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	2	Intro	5	Nat	4.0000	1.7541	2	2.28	0.1502
geo_num*origin	2	Intro	6	Intro	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	2	Intro	6	Nat	-888E-18	1.6013	2	-0.00	1.0000
geo_num*origin	2	Intro	7	Intro	2.6667	1.6013	2	1.67	0.2378
geo_num*origin	2	Intro	8	Intro	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	2	Intro	8	Nat	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	2	Intro	9	Intro	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	2	Intro	9	Nat	2.0000	1.7541	2	1.14	0.3724
geo_num*origin	2	Nat	3	Intro	-4.0000	2.1483	2	-1.86	0.2037
geo_num*origin	2	Nat	3	Nat	-178E-17	2.4807	2	-0.00	1.0000
geo_num*origin	2	Nat	4	Intro	-1.3333	2.0255	2	-0.66	0.5780
geo_num*origin	2	Nat	4	Nat	-355E-17	2.4807	2	-0.00	1.0000
geo_num*origin	2	Nat	5	Nat	-178E-17	2.1483	2	-0.00	1.0000
geo_num*origin	2	Nat	6	Intro	-178E-17	2.4807	2	-0.00	1.0000
geo_num*origin	2	Nat	6	Nat	-4.0000	2.0255	2	-1.97	0.1870
geo_num*origin	2	Nat	7	Intro	-1.3333	2.0255	2	-0.66	0.5780
geo_num*origin	2	Nat	8	Intro	-133E-17	2.4807	2	-0.00	1.0000
geo_num*origin	2	Nat	8	Nat	-178E-17	2.4807	2	-0.00	1.0000
geo_num*origin	2	Nat	9	Intro	-733E-17	2.4807	2	-0.00	1.0000
geo_num*origin	2	Nat	9	Nat	-2.0000	2.1483	2	-0.93	0.4502
geo_num*origin	3	Intro	3	Nat	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	3	Intro	4	Intro	2.6667	1.6013	2	1.67	0.2378
geo_num*origin	3	Intro	4	Nat	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	3	Intro	5	Nat	4.0000	1.7541	2	2.28	0.1502
geo_num*origin	3	Intro	6	Intro	4.0000	2.1483	2	1.86	0.2037

## 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	3	Intro	6	Nat	-444E-18	1.6013	2	-0.00	1.0000
geo_num*origin	3	Intro	7	Intro	2.6667	1.6013	2	1.67	0.2378
geo_num*origin	3	Intro	8	Intro	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	3	Intro	8	Nat	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	3	Intro	9	Intro	4.0000	2.1483	2	1.86	0.2037
geo_num*origin	3	Intro	9	Nat	2.0000	1.7541	2	1.14	0.3724
geo_num*origin	3	Nat	4	Intro	-1.3333	2.0255	2	-0.66	0.5780
geo_num*origin	3	Nat	4	Nat	-178E-17	2.4807	2	-0.00	1.0000
geo_num*origin	3	Nat	5	Nat	0	2.1483	2	0.00	1.0000
geo_num*origin	3	Nat	6	Intro	6.66E-16	2.4807	2	0.00	1.0000
geo_num*origin	3	Nat	6	Nat	-4.0000	2.0255	2	-1.97	0.1870
geo_num*origin	3	Nat	7	Intro	-1.3333	2.0255	2	-0.66	0.5780
geo_num*origin	3	Nat	8	Intro	6.66E-16	2.4807	2	0.00	1.0000
geo_num*origin	3	Nat	8	Nat	0	2.4807	2	0.00	1.0000
geo_num*origin	3	Nat	9	Intro	-555E-17	2.4807	2	-0.00	1.0000
geo_num*origin	3	Nat	9	Nat	-2.0000	2.1483	2	-0.93	0.4502
geo_num*origin	4	Intro	4	Nat	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	4	Intro	5	Nat	1.3333	1.6013	2	0.83	0.4926
geo_num*origin	4	Intro	6	Intro	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	4	Intro	6	Nat	-2.6667	1.4322	2	-1.86	0.2037
geo_num*origin	4	Intro	7	Intro	-444E-18	1.4322	2	-0.00	1.0000
geo_num*origin	4	Intro	8	Intro	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	4	Intro	8	Nat	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	4	Intro	9	Intro	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	4	Intro	9	Nat	-0.6667	1.6013	2	-0.42	0.7176
geo_num*origin	4	Nat	5	Nat	1.78E-15	2.1483	2	0.00	1.0000
geo_num*origin	4	Nat	6	Intro	2.66E-15	2.4807	2	0.00	1.0000
geo_num*origin	4	Nat	6	Nat	-4.0000	2.0255	2	-1.97	0.1870
geo_num*origin	4	Nat	7	Intro	-1.3333	2.0255	2	-0.66	0.5780
geo_num*origin	4	Nat	8	Intro	2.22E-15	2.4807	2	0.00	1.0000
geo_num*origin	4	Nat	8	Nat	1.78E-15	2.4807	2	0.00	1.0000
geo_num*origin	4	Nat	9	Intro	-377E-17	2.4807	2	-0.00	1.0000
geo_num*origin	4	Nat	9	Nat	-2.0000	2.1483	2	-0.93	0.4502
geo_num*origin	5	Nat	6	Intro	6.66E-16	2.1483	2	0.00	1.0000
geo_num*origin	5	Nat	6	Nat	-4.0000	1.6013	2	-2.50	0.1298

## 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	5	Nat	7	Intro	-1.3333	1.6013	2	-0.83	0.4926
geo_num*origin	5	Nat	8	Intro	6.66E-16	2.1483	2	0.00	1.0000
geo_num*origin	5	Nat	8	Nat	0	2.1483	2	0.00	1.0000
geo_num*origin	5	Nat	9	Intro	-555E-17	2.1483	2	-0.00	1.0000
geo_num*origin	5	Nat	9	Nat	-2.0000	1.7541	2	-1.14	0.3724
geo_num*origin	6	Intro	6	Nat	-4.0000	2.0255	2	-1.97	0.1870
geo_num*origin	6	Intro	7	Intro	-1.3333	2.0255	2	-0.66	0.5780
geo_num*origin	6	Intro	8	Intro	0	2.4807	2	0.00	1.0000
geo_num*origin	6	Intro	8	Nat	-888E-18	2.4807	2	-0.00	1.0000
geo_num*origin	6	Intro	9	Intro	-622E-17	2.4807	2	-0.00	1.0000
geo_num*origin	6	Intro	9	Nat	-2.0000	2.1483	2	-0.93	0.4502
geo_num*origin	6	Nat	7	Intro	2.6667	1.4322	2	1.86	0.2037
geo_num*origin	6	Nat	8	Intro	4.0000	2.0255	2	1.97	0.1870
geo_num*origin	6	Nat	8	Nat	4.0000	2.0255	2	1.97	0.1870
geo_num*origin	6	Nat	9	Intro	4.0000	2.0255	2	1.97	0.1870
geo_num*origin	6	Nat	9	Nat	2.0000	1.6013	2	1.25	0.3380
geo_num*origin	7	Intro	8	Intro	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	7	Intro	8	Nat	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	7	Intro	9	Intro	1.3333	2.0255	2	0.66	0.5780
geo_num*origin	7	Intro	9	Nat	-0.6667	1.6013	2	-0.42	0.7176
geo_num*origin	8	Intro	8	Nat	-444E-18	2.4807	2	-0.00	1.0000
geo_num*origin	8	Intro	9	Intro	-6E-15	2.4807	2	-0.00	1.0000
geo_num*origin	8	Intro	9	Nat	-2.0000	2.1483	2	-0.93	0.4502
geo_num*origin	8	Nat	9	Intro	-555E-17	2.4807	2	-0.00	1.0000
geo_num*origin	8	Nat	9	Nat	-2.0000	2.1483	2	-0.93	0.4502
geo_num*origin	9	Intro	9	Nat	-2.0000	2.1483	2	-0.93	0.4502