

The GLM Procedure

Class Level Information

Class	Levels	Values
rep	4	1 2 3 4
spacing	2	1 2
density	4	1 2 3 4
Number of observations		32

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	13	0.05940938	0.00456995	1.77	0.1299
Error	18	0.04651663	0.00258426		
Corrected Total	31	0.10592600			

R-Square	Coeff Var	Root MSE	y Mean
0.560857	20.87704	0.050836	0.24350

Source	DF	Type I SS	Mean Square	F Value	Pr > F
rep	3	0.01699525	0.00566508	2.19	0.1242
spacing	1	0.00002813	0.00002813	0.01	0.9181
rep*spacing	3	0.00978813	0.00326271	1.26	0.3170
density	3	0.00833025	0.00277675	1.07	0.3848
spacing*density	3	0.02426762	0.00808921	3.13	0.0514

Source	DF	Type III SS	Mean Square	F Value	Pr > F
rep	3	0.01699525	0.00566508	2.19	0.1242
spacing	1	0.00002812	0.00002812	0.01	0.9181
rep*spacing	3	0.00978813	0.00326271	1.26	0.3170
density	3	0.00833025	0.00277675	1.07	0.3848
spacing*density	3	0.02426762	0.00808921	3.13	0.0514

Source	Type III Expected Mean Square
rep	Var(Error) + 4 Var(rep*spacing) + 8 Var(rep)
spacing	Var(Error) + 4 Var(rep*spacing) + Q(spacing, spacing*density)
rep*spacing	Var(Error) + 4 Var(rep*spacing)
density	Var(Error) + Q(density, spacing*density)
spacing*density	Var(Error) + Q(spacing*density)

Tests of Hypotheses Using the Type III MS for rep*spacing as an Error Term

Source	DF	Type III SS	Mean Square	F Value	Pr > F
spacing	1	0.00002812	0.00002812	0.01	0.9319

The Mixed Procedure

Type 3 Analysis of Variance

Source	DF	Sum of Squares	Mean Square	Expected Mean Square
spacing	1	0.000028125	0.000028125	Var(Residual) + 4 Var(rep*spacing) + Q(spacing, spacing*density)
density	3	0.008330	0.002777	Var(Residual) + Q(density, spacing*density)
spacing*density	3	0.024268	0.008089	Var(Residual) + Q(spacing*density)
rep	3	0.016995	0.005665	Var(Residual) + 4 Var(rep*spacing) + 8 Var(rep)
rep*spacing	3	0.009788	0.003263	Var(Residual) + 4 Var(rep*spacing)
Residual	18	0.046517	0.002584	Var(Residual)

Type 3 Analysis of Variance

Source	Error Term	Error		
		DF	F Value	Pr > F
spacing	MS(rep*spacing)	3	0.01	0.9319
density	MS(Residual)	18	1.07	0.3848
spacing*density	MS(Residual)	18	3.13	0.0514
rep	MS(rep*spacing)	3	1.74	0.3308
rep*spacing	MS(Residual)	18	1.26	0.3170
Residual

Covariance Parameter Estimates

Cov Parm	Estimate
rep	0.000300
rep*spacing	0.000170
Residual	0.002584

Type 3 Tests of Fixed Effects

Effect	Num	Den	F Value	Pr > F
	DF	DF		
spacing	1	3	0.01	0.9319
density	3	18	1.07	0.3848
spacing*density	3	18	3.13	0.0514

Least Squares Means

Effect			Estimate	Standard Error	DF	t Value	Pr > t
	spacing	density					
spacing	1		0.2426	0.01670	5.59	14.52	<.0001
spacing	2		0.2444	0.01670	5.59	14.63	<.0001
density		1	0.2253	0.02048	12.8	11.00	<.0001
density		2	0.2311	0.02048	12.8	11.29	<.0001
density		3	0.2654	0.02048	12.8	12.96	<.0001
density		4	0.2523	0.02048	12.8	12.32	<.0001
spacing*density	1	1	0.2522	0.02763	21.6	9.13	<.0001
spacing*density	1	2	0.2503	0.02763	21.6	9.06	<.0001
spacing*density	1	3	0.2217	0.02763	21.6	8.03	<.0001
spacing*density	1	4	0.2460	0.02763	21.6	8.90	<.0001
spacing*density	2	1	0.1983	0.02763	21.6	7.17	<.0001
spacing*density	2	2	0.2120	0.02763	21.6	7.67	<.0001
spacing*density	2	3	0.3090	0.02763	21.6	11.18	<.0001
spacing*density	2	4	0.2585	0.02763	21.6	9.36	<.0001
spacing*density	1	1	0.2522	0.02763	21.6	9.13	<.0001
spacing*density	1	2	0.2503	0.02763	21.6	9.06	<.0001
spacing*density	1	3	0.2217	0.02763	21.6	8.03	<.0001
spacing*density	1	4	0.2460	0.02763	21.6	8.90	<.0001
spacing*density	2	1	0.1983	0.02763	21.6	7.17	<.0001
spacing*density	2	2	0.2120	0.02763	21.6	7.67	<.0001
spacing*density	2	3	0.3090	0.02763	21.6	11.18	<.0001
spacing*density	2	4	0.2585	0.02763	21.6	9.36	<.0001

Tests of Effect Slices

Effect	spacing	density	Num	Den	F Value	Pr > F
			DF	DF		
spacing*density	1		3	18	0.31	0.8189
spacing*density	2		3	18	3.90	0.0263
spacing*density		1	1	17.6	2.12	0.1632
spacing*density		2	1	17.6	1.06	0.3166
spacing*density		3	1	17.6	5.53	0.0306
spacing*density		4	1	17.6	0.11	0.7402