

The Mixed Procedure

Model Information	
Data Set	WORK.CAKE
Dependent Variable	break
Covariance Structure	Variance Components
Estimation Method	Type 3
Residual Variance Method	Factor
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Satterthwaite

Class Level Information		
Class	Levels	Values
recipe	3	1 2 3
replicat	15	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
baketemp	6	1 2 3 4 5 6

Dimensions	
Covariance Parameters	2
Columns in X	28
Columns in Z	45
Subjects	1
Max Obs Per Subject	270

Number of Observations	
Number of Observations Read	270
Number of Observations Used	270
Number of Observations Not Used	0

The Mixed Procedure

Type 3 Analysis of Variance						
Source	DF	Sum of Squares	Mean Square	Expected Mean Square	Error Term	Error DF
recipe	2	135.088889	67.544444	Var(Residual) + 6 Var(replicat(recipe)) + Q(recipe,recipe*baketemp)	MS(replicat(recipe))	42
baketemp	5	2100.300000	420.060000	Var(Residual) + Q(baketemp,recipe*baketemp)	MS(Residual)	210
recipe*baketemp	10	205.977778	20.597778	Var(Residual) + Q(recipe*baketemp)	MS(Residual)	210
replicat(recipe)	42	11403	271.493122	Var(Residual) + 6 Var(replicat(recipe))	MS(Residual)	210
Residual	210	4298.888889	20.470899	Var(Residual)	.	.

Type 3 Analysis of Variance		
Source	F Value	Pr > F
recipe	0.25	0.7809
baketemp	20.52	<.0001
recipe*baketemp	1.01	0.4393
replicat(recipe)	13.26	<.0001
Residual	.	.

Covariance Parameter Estimates	
Cov Parm	Estimate
replicat(recipe)	41.8370
Residual	20.4709

Fit Statistics	
-2 Res Log Likelihood	1633.2
AIC (smaller is better)	1637.2
AICC (smaller is better)	1637.3
BIC (smaller is better)	1640.9

The Mixed Procedure

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
recipe	2	42	0.25	0.7809
baketemp	5	210	20.52	<.0001
recipe*baketemp	10	210	1.01	0.4393

Estimates								
Label	Estimate	Standard Error	DF	t Value	Pr > t	Alpha	Lower	Upper
recipe 1 - recipe 2	1.4778	2.4563	42	0.60	0.5506	0.05	-3.4791	6.4347
temp 1 - temp2	-1.9778	0.9538	210	-2.07	0.0393	0.05	-3.8581	-0.09744
mu11 - mu12	-2.4000	1.6521	210	-1.45	0.1478	0.05	-5.6568	0.8568
mu11 - mu21	2.2667	2.8823	77.4	0.79	0.4340	0.05	-3.4722	8.0056

Contrasts				
Label	Num DF	Den DF	F Value	Pr > F
normal vs extra sugar	1	42	0.14	0.7145
chocolate temp	1	42	0.36	0.5506
linear baketemp	1	210	96.07	<.0001
nonlinear baketemp	4	210	1.63	0.1675

Least Squares Means							
Effect	recipe	baketemp	Estimate	Standard Error	DF	t Value	Pr > t
recipe	1		33.1222	1.7368	42	19.07	<.0001
recipe	2		31.6444	1.7368	42	18.22	<.0001
recipe	3		31.6000	1.7368	42	18.19	<.0001
baketemp		1	27.9778	1.1767	77.4	23.78	<.0001
baketemp		2	29.9556	1.1767	77.4	25.46	<.0001
baketemp		3	31.4222	1.1767	77.4	26.70	<.0001
baketemp		4	32.1778	1.1767	77.4	27.35	<.0001
baketemp		5	35.8444	1.1767	77.4	30.46	<.0001
baketemp		6	35.3556	1.1767	77.4	30.05	<.0001

The Mixed Procedure

Least Squares Means							
Effect	recipe	baketemp	Estimate	Standard Error	DF	t Value	Pr > t
recipe*baketemp	1	1	29.1333	2.0381	77.4	14.29	<.0001
recipe*baketemp	1	2	31.5333	2.0381	77.4	15.47	<.0001
recipe*baketemp	1	3	30.8000	2.0381	77.4	15.11	<.0001
recipe*baketemp	1	4	33.5333	2.0381	77.4	16.45	<.0001
recipe*baketemp	1	5	38.6667	2.0381	77.4	18.97	<.0001
recipe*baketemp	1	6	35.0667	2.0381	77.4	17.21	<.0001
recipe*baketemp	2	1	26.8667	2.0381	77.4	13.18	<.0001
recipe*baketemp	2	2	29.4000	2.0381	77.4	14.43	<.0001
recipe*baketemp	2	3	31.7333	2.0381	77.4	15.57	<.0001
recipe*baketemp	2	4	32.1333	2.0381	77.4	15.77	<.0001
recipe*baketemp	2	5	34.4667	2.0381	77.4	16.91	<.0001
recipe*baketemp	2	6	35.2667	2.0381	77.4	17.30	<.0001
recipe*baketemp	3	1	27.9333	2.0381	77.4	13.71	<.0001
recipe*baketemp	3	2	28.9333	2.0381	77.4	14.20	<.0001
recipe*baketemp	3	3	31.7333	2.0381	77.4	15.57	<.0001
recipe*baketemp	3	4	30.8667	2.0381	77.4	15.14	<.0001
recipe*baketemp	3	5	34.4000	2.0381	77.4	16.88	<.0001
recipe*baketemp	3	6	35.7333	2.0381	77.4	17.53	<.0001

Estimated marginal and joint means

Obs	Effect	recipe	baketemp	Estimate	StdErr	DF	tValue	Probt
1	recipe	1	_	33.1222	1.7368	42	19.07	<.0001
2	recipe	2	_	31.6444	1.7368	42	18.22	<.0001
3	recipe	3	_	31.6000	1.7368	42	18.19	<.0001
4	baketemp	_	1	27.9778	1.1767	77.4	23.78	<.0001
5	baketemp	_	2	29.9556	1.1767	77.4	25.46	<.0001
6	baketemp	_	3	31.4222	1.1767	77.4	26.70	<.0001
7	baketemp	_	4	32.1778	1.1767	77.4	27.35	<.0001
8	baketemp	_	5	35.8444	1.1767	77.4	30.46	<.0001
9	baketemp	_	6	35.3556	1.1767	77.4	30.05	<.0001
10	recipe*baketemp	1	1	29.1333	2.0381	77.4	14.29	<.0001
11	recipe*baketemp	1	2	31.5333	2.0381	77.4	15.47	<.0001
12	recipe*baketemp	1	3	30.8000	2.0381	77.4	15.11	<.0001
13	recipe*baketemp	1	4	33.5333	2.0381	77.4	16.45	<.0001
14	recipe*baketemp	1	5	38.6667	2.0381	77.4	18.97	<.0001
15	recipe*baketemp	1	6	35.0667	2.0381	77.4	17.21	<.0001
16	recipe*baketemp	2	1	26.8667	2.0381	77.4	13.18	<.0001
17	recipe*baketemp	2	2	29.4000	2.0381	77.4	14.43	<.0001
18	recipe*baketemp	2	3	31.7333	2.0381	77.4	15.57	<.0001
19	recipe*baketemp	2	4	32.1333	2.0381	77.4	15.77	<.0001
20	recipe*baketemp	2	5	34.4667	2.0381	77.4	16.91	<.0001
21	recipe*baketemp	2	6	35.2667	2.0381	77.4	17.30	<.0001
22	recipe*baketemp	3	1	27.9333	2.0381	77.4	13.71	<.0001
23	recipe*baketemp	3	2	28.9333	2.0381	77.4	14.20	<.0001
24	recipe*baketemp	3	3	31.7333	2.0381	77.4	15.57	<.0001
25	recipe*baketemp	3	4	30.8667	2.0381	77.4	15.14	<.0001
26	recipe*baketemp	3	5	34.4000	2.0381	77.4	16.88	<.0001
27	recipe*baketemp	3	6	35.7333	2.0381	77.4	17.53	<.0001

Profile plot of estimated joint treatment means

