```
    get file=' ... twicerandom\data1\tw-set1d-spss.sav'.
dataset name tw.

* optional
extension /specification command="C:\Program Files\SPSSInc\SPSS16\extensions\djmixed.xml" .


*** PART 1 : One simple model (interaction model) **** .


MEANS TABLES=rt BY morph BY priming
  /CELLS MEAN COUNT STDDEV.
```

Means

Notes

Output Created		28-Mar-2010 16:32:00
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	For each dependent variable in a table, user-defined missing values for the dependent and all grouping variables are treated as missing.
	Cases Used	Cases used for each table have no missing values in any independent variable, and not all dependent variables have missing values.
Syntax		MEANS TABLES=rt BY morph BY priming /CELLS MEAN COUNT STDDEV.
Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.016

[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
reaction time * morphological status * primed?	2004	100.0%	0	.0%	2004	100.0%

Report

reaction time

morphological status	primed?	Mean	N	Std. Deviation
deri	no	682.5567	467	171.76647
	yes	594.0119	505	140.81857
	Total	636.5535	972	162.51513
infl	no	645.5619	509	161.54890
	yes	587.5373	523	139.68033
	Total	616.1560	1032	153.55732
Total	no	663.2633	976	167.45414
	yes	590.7179	1028	140.20973
	Total	626.0494	2004	158.25485

```
** model 1 : all main, interaction .
DJMIXED /MIXEDMODEL
               DV = rt
               PREDICTORS = priming morph priming*morph
               PPS = Participant
               ITEMS = Word
               NAME = 'interaction'
               OUTPUT = full .
== Submitting DJMIXED MIXEDMODEL 'interaction' ==
MIXED rt
 BY morph priming
 /FIXED= priming morph priming*morph | SSTYPE(3)
 /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE(VC)
 /RANDOM=INTERCEPT | SUBJECT(Word) COVTYPE(VC)
 /METHOD=ML
/PRINT=SOLUTION  TESTCOV  COVB
/CRITERIA=CIN(95) MXITER(10000) MXSTEP(50) SCORING(1) SINGULAR(0.0000000000
01)
HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
 .
Removed old model by this name
```

Mixed Model Analysis

Notes

Output Created		28-Mar-2010 16:42:46
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		MIXED rt BY morph priming /FIXED= priming morph priming*morph | SSTYPE(3) /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE (VC) /RANDOM=INTERCEPT | SUBJECT(Word) COVTYPE(VC) /METHOD=ML /PRINT=SOLUTION TESTCOV COVB /CRITERIA=CIN(95) MXITER (10000) MXSTEP(50) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE) .
Resources	Processor Time	00:00:00.610
	Elapsed Time	00:00:00.608

[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav

Model Dimension[b]

		Number of Levels	Covariance Structure	Number of Parameters	Subject Variables
Fixed Effects	Intercept	1		1	
	Priming	2		1	
	Morph	2		1	
	Morph * Priming	4		1	
Random Effects	Intercept[a]	1	Variance Components	1	Participant
	Intercept[a]	1	Variance Components	1	Word
Residual				1	
Total		11		7	

a. As of version 11.5, the syntax rules for the RANDOM subcommand have changed. Your command syntax may yield results that differ from those produced by prior versions. If you are using version 11 syntax, please consult the current syntax reference guide for more information.

b. Dependent Variable: reaction time.

Information Criteria[a]

-2 Log Likelihood	25399.164
Akaike's Information Criterion (AIC)	25413.164
Hurvich and Tsai's Criterion (AICC)	25413.220
Bozdogan's Criterion (CAIC)	25459.384
Schwarz's Bayesian Criterion (BIC)	25452.384

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: reaction time.

Fixed Effects

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	43.046	2176.965	.000
Priming	1	71.533	47.905	.000
Morph	1	183.880	9.218	.003
Morph * Priming	1	174.402	4.199	.042

a. Dependent Variable: reaction time.

Estimates of Fixed Effects[b]

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	586.126716	15.537272	69.386	37.724	.000
[Priming=1]	59.551195	13.422865	91.146	4.437	.000
[Priming=2]	0[a]	0	.	.	.
[Morph=1]	8.288684	8.271139	1912.627	1.002	.316
[Morph=2]	0[a]	0	.	.	.
[Morph=1] * [Priming=1]	32.436236	15.828573	174.402	2.049	.042
[Morph=1] * [Priming=2]	0[a]	0	.	.	.
[Morph=2] * [Priming=1]	0[a]	0	.	.	.
[Morph=2] * [Priming=2]	0[a]	0	.	.	.

a. This parameter is set to zero because it is redundant.

b. Dependent Variable: reaction time.

Estimates of Fixed Effects[b]

Parameter	95% Confidence Interval	
	Lower Bound	Upper Bound
Intercept	555.133786	617.119646
[Priming=1]	32.888898	86.213493
[Priming=2]	.	.
[Morph=1]	-7.932716	24.510084
[Morph=2]	.	.
[Morph=1] * [Priming=1]	1.196021	63.676452
[Morph=1] * [Priming=2]	.	.
[Morph=2] * [Priming=1]	.	.
[Morph=2] * [Priming=2]	.	.

b. Dependent Variable: reaction time.

Covariance Matrix for Estimates of Fixed Effects[b]

Parameter	Intercept	[Priming=1]	[Priming=2]	[Morph=1]	[Morph=2]
Intercept	241.406822	-89.636816	0[a]	-33.560644	0[a]
[Priming=1]	-89.636816	180.173309	0[a]	32.543018	0[a]
[Priming=2]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=1]	-33.560644	32.543018	0[a]	68.411741	0[a]
[Morph=2]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=1] * [Priming=1]	32.362472	-122.968541	0[a]	-65.892087	0[a]
[Morph=1] * [Priming=2]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=2] * [Priming=1]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=2] * [Priming=2]	0[a]	0[a]	0[a]	0[a]	0[a]

a. The covariance is set to zero because it is associated with a redundant parameter.

b. Dependent Variable: reaction time.

Covariance Matrix for Estimates of Fixed Effects[b]

Parameter	[Morph=1] * [Priming=1]	[Morph=1] * [Priming=2]	[Morph=2] * [Priming=1]	[Morph=2] * [Priming=2]
Intercept	32.362472	0[a]	0[a]	0[a]
[Priming=1]	-122.968541	0[a]	0[a]	0[a]
[Priming=2]	0[a]	0[a]	0[a]	0[a]
[Morph=1]	-65.892087	0[a]	0[a]	0[a]
[Morph=2]	0[a]	0[a]	0[a]	0[a]
[Morph=1] * [Priming=1]	250.543737	0[a]	0[a]	0[a]
[Morph=1] * [Priming=2]	0[a]	0[a]	0[a]	0[a]
[Morph=2] * [Priming=1]	0[a]	0[a]	0[a]	0[a]
[Morph=2] * [Priming=2]	0[a]	0[a]	0[a]	0[a]

a. The covariance is set to zero because it is associated with a redundant parameter.

b. Dependent Variable: reaction time.

Covariance Parameters

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.
Residual		16880.086679	552.518464	30.551	.000
Intercept [subject = Participant]	Variance	5143.627093	1317.514969	3.904	.000
Intercept [subject = Word]	Variance	1773.913561	415.145763	4.273	.000

a. Dependent Variable: reaction time.

Estimates of Covariance Parameters[a]

Parameter		95% Confidence Interval	
		Lower Bound	Upper Bound
Residual		15831.175754	17998.494283
Intercept [subject = Participant]	Variance	3113.424621	8497.684348
Intercept [subject = Word]	Variance	1121.314158	2806.322654

a. Dependent Variable: reaction time.

Covariance Matrix for Estimates of Covariance Parameters[a]

Parameter		Residual	Intercept [subject = Participant] Variance	Intercept [subject = Word] Variance
Residual		3.052767E5	-4663.172483	-2.168719E4
Intercept [subject = Participant]	Variance	-4663.172483	1.735846E6	-283.079789
Intercept [subject = Word]	Variance	-2.168719E4	-283.079789	1.723460E5

a. Dependent Variable: reaction time.

```
DJMIXED /MODELSUMMARY
```

```
            NAME = 'interaction' .
```

DJMIXED.modelsummary

Notes

Output Created		28-Mar-2010 16:42:47
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Syntax		BEGIN PROGRAM PYTHON.
Resources	Processor Time	00:00:00.032
	Elapsed Time	00:00:00.031

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Fixed Effects

	Model name: interaction			
	Model Term	beta	F	p
1	Intercept	586.126716	2176.965	.000
2	Priming	59.551195	47.905	.000
3	Morph	8.288684	9.218	.003
4	Morph * Priming	32.436236	4.199	.042

Random Effects

	Model name: interaction				
	Model Term	Adjustment for	Variance	Wald Z	p
1	Intercept	Participant	5143.627	3.904	.000
2	Intercept	Word	1773.914	4.273	.000
3	Error	--	16880.087	30.551	.000

```
*** PART 2 : step wise regression and model comparison **** .

** model 2 : null model .
DJMIXED /MIXEDMODEL
            DV = rt
            PPS = Participant
            ITEMS = Word
            NAME = 'null'
            OUTPUT = full .
```

```
== Submitting DJMIXED MIXEDMODEL 'null' ==
MIXED rt
 /FIXED=  | SSTYPE(3)
 /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE(VC)
 /RANDOM=INTERCEPT | SUBJECT(Word) COVTYPE(VC)
 /METHOD=ML
/PRINT=SOLUTION  TESTCOV  COVB
/CRITERIA=CIN(95) MXITER(10000) MXSTEP(50) SCORING(1) SINGULAR(0.0000000000
01)
HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
 .
```

Mixed Model Analysis

Notes

Output Created		28-Mar-2010 16:42:47
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		MIXED rt /FIXED= | SSTYPE(3) /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE (VC) /RANDOM=INTERCEPT | SUBJECT(Word) COVTYPE(VC) /METHOD=ML /PRINT=SOLUTION TESTCOV COVB /CRITERIA=CIN(95) MXITER (10000) MXSTEP(50) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE) .
Resources	Processor Time	00:00:00.500
	Elapsed Time	00:00:00.563

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Model Dimension[b]

		Number of Levels	Covariance Structure	Number of Parameters	Subject Variables
Fixed Effects	Intercept	1		1	
Random Effects	Intercept[a]	1	Variance Components	1	Participant
	Intercept[a]	1	Variance Components	1	Word
Residual				1	
Total		3		4	

a. As of version 11.5, the syntax rules for the RANDOM subcommand have changed. Your command syntax may yield results that differ from those produced by prior versions. If you are using version 11 syntax, please consult the current syntax reference guide for more information.

b. Dependent Variable: reaction time.

Information Criteria[a]

-2 Log Likelihood	25443.243
Akaike's Information Criterion (AIC)	25451.243
Hurvich and Tsai's Criterion (AICC)	25451.263
Bozdogan's Criterion (CAIC)	25477.654
Schwarz's Bayesian Criterion (BIC)	25473.654

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: reaction time.

Fixed Effects

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	50.710	2058.861	.000

a. Dependent Variable: reaction time.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	638.513023	14.072013	50.710	45.375	.000

a. Dependent Variable: reaction time.

Estimates of Fixed Effects[a]

Parameter	95% Confidence Interval	
	Lower Bound	Upper Bound
Intercept	610.258358	666.767688

a. Dependent Variable: reaction time.

Covariance Matrix for Estimates of Fixed Effects[a]

Parameter	Intercept
Intercept	198.021549

a. Dependent Variable: reaction time.

Covariance Parameters

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.
Residual		16860.743864	550.799531	30.611	.000
Intercept [subject = Participant]	Variance	5128.750333	1314.316561	3.902	.000
Intercept [subject = Word]	Variance	3507.157969	661.143335	5.305	.000

a. Dependent Variable: reaction time.

Estimates of Covariance Parameters[a]

Parameter		95% Confidence Interval	
		Lower Bound	Upper Bound
Residual		15815.030906	17975.600892
Intercept [subject = Participant]	Variance	3103.693547	8475.089301
Intercept [subject = Word]	Variance	2423.779700	5074.783414

a. Dependent Variable: reaction time.

Covariance Matrix for Estimates of Covariance Parameters[a]

Parameter		Residual	Intercept [subject = Participant]	Intercept [subject = Word]
			Variance	Variance
Residual		3.033801E5	-4985.222029	-1.932389E4
Intercept [subject = Participant]	Variance	-4985.222029	1.727428E6	2192.471501
Intercept [subject = Word]	Variance	-1.932389E4	2192.471501	4.371105E5

a. Dependent Variable: reaction time.

```
DJMIXED /MODELSUMMARY
              NAME = 'null' .
```

DJMIXED.modelsummary

Notes

Output Created		28-Mar-2010 16:42:47
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Syntax		BEGIN PROGRAM PYTHON.
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.014

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Fixed Effects

	Model name: null			
	Model Term	beta	F	p
1	Intercept	638.513023	2058.861	.000

Random Effects

	Model name: null				
	Model Term	Adjustment for	Variance	Wald Z	p
1	Intercept	Participant	5128.750	3.902	.000
2	Intercept	Word	3507.158	5.305	.000
3	Error	--	16860.744	30.611	.000

```
** model 3 : main effects.
DJMIXED /MIXEDMODEL
              DV = rt
               PREDICTORS = priming morph
             PPS = Participant
              ITEMS = Word
              NAME = 'main effects'
              OUTPUT = full .
== Submitting DJMIXED MIXEDMODEL 'main effects' ==
MIXED rt
 BY morph priming
 /FIXED= priming morph | SSTYPE(3)
 /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE(VC)
 /RANDOM=INTERCEPT | SUBJECT(Word) COVTYPE(VC)
 /METHOD=ML
/PRINT=SOLUTION  TESTCOV  COVB
```

```
/CRITERIA=CIN(95) MXITER(10000) MXSTEP(50) SCORING(1) SINGULAR(0.0000000000
01)
HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
 .

DJMIXED /MODELSUMMARY
             NAME = 'main effects' .

DJMIXED /COMPAREMODELS
            NAME1='null'   NAME2='main effects'.

DJMIXED /COMPAREMODELS
            NAME1='main effects' NAME2='interaction'   .
```

DJMIXED.CompareModels

Notes

Output Created		28-Mar-2010 16:43:01
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		BEGIN PROGRAM PYTHON.
Resources	Processor Time	00:00:00.015
	Elapsed Time	00:00:00.017

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Compare Models[a]

	Model A	Model B	LRT	Best
Model Name	main effects	interaction		
-2LL	25403.322	25399.164		B
AIC	25415.322	25413.164		B
Number of Parameters	6.000	7.000		A
Chi-squared			4.158	
Df			1.000	
p-value			.041	B

a. Assumptions: Model A is nested within Model B, which makes Model B a more complex model (more parameters). Model A and Model B do not only differ in random effects, use comparerandommodels in that case. The LRT (likelihood ratio test) evaluates the improved fit of Model B against the lower number of parameters of Model A and suggests which model is best based on a Chi-Squared test (with alpha=0).

```
*** PART 3 :  post hocs and contrasts **** .

DJMIXED /MIXEDMODEL
             DV = rt
             PREDICTORS = form
             PPS = Participant
             ITEMS = Base
             NAME = 'posthoc on form'
             POSTHOC = form
              OUTPUT = full .
== Submitting DJMIXED MIXEDMODEL 'posthoc on form' ==
MIXED rt
 BY form
 /FIXED= form | SSTYPE(3)
 /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE(VC)
 /RANDOM=INTERCEPT | SUBJECT(Base) COVTYPE(VC)
 /EMMEANS = tables(form) compare adj(sidak)
 /METHOD=ML
/PRINT=SOLUTION  TESTCOV  COVB
/CRITERIA=CIN(95) MXITER(10000) MXSTEP(50) SCORING(1) SINGULAR(0.0000000000
01)
HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
 .
```

Mixed Model Analysis

Notes

Output Created		28-Mar-2010 16:43:02
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		MIXED rt BY form /FIXED= form | SSTYPE(3) /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE (VC) /RANDOM=INTERCEPT | SUBJECT(Base) COVTYPE(VC) /EMMEANS = tables(form) compare adj(sidak) /METHOD=ML /PRINT=SOLUTION TESTCOV COVB /CRITERIA=CIN(95) MXITER (10000) MXSTEP(50) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE) .
Resources	Processor Time	00:00:00.109
	Elapsed Time	00:00:00.109

[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav

Model Dimension[b]

		Number of Levels	Covariance Structure	Number of Parameters	Subject Variables
Fixed Effects	Intercept	1		1	
	Form	3		2	
Random Effects	Intercept[a]	1	Variance Components	1	Participant
	Intercept[a]	1	Variance Components	1	Base
Residual				1	
Total		6		6	

a. As of version 11.5, the syntax rules for the RANDOM subcommand have changed. Your command syntax may yield results that differ from those produced by prior versions. If you are using version 11 syntax, please consult the current syntax reference guide for more information.

b. Dependent Variable: reaction time.

Information Criteria[a]

-2 Log Likelihood	25395.216
Akaike's Information Criterion (AIC)	25407.216
Hurvich and Tsai's Criterion (AICC)	25407.258
Bozdogan's Criterion (CAIC)	25446.834
Schwarz's Bayesian Criterion (BIC)	25440.834

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: reaction time.

Fixed Effects

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	46.975	2086.973	.000
Form	2	1945.435	90.735	.000

a. Dependent Variable: reaction time.

Estimates of Fixed Effects[b]

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	645.889586	14.877137	59.515	43.415	.000
[Form=0]	-55.645523	7.173169	1943.058	-7.757	.000
[Form=1]	39.561024	8.563073	1949.081	4.620	.000
[Form=2]	0[a]	0	.	.	.

a. This parameter is set to zero because it is redundant.

b. Dependent Variable: reaction time.

Estimates of Fixed Effects[b]

Parameter	95% Confidence Interval	
	Lower Bound	Upper Bound
Intercept	616.125889	675.653283
[Form=0]	-69.713439	-41.577606
[Form=1]	22.767281	56.354767
[Form=2]	.	.

b. Dependent Variable: reaction time.

Covariance Matrix for Estimates of Fixed Effects[b]

Parameter	Intercept	[Form=0]	[Form=1]	[Form=2]
Intercept	221.329208	-34.570524	-35.016719	0[a]
[Form=0]	-34.570524	51.454355	35.041019	0[a]
[Form=1]	-35.016719	35.041019	73.326218	0[a]
[Form=2]	0[a]	0[a]	0[a]	0[a]

a. The covariance is set to zero because it is associated with a redundant parameter.

b. Dependent Variable: reaction time.

Covariance Parameters

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.
Residual		17336.201194	556.648590	31.144	.000
Intercept [subject = Participant]	Variance	5161.285804	1323.960920	3.898	.000
Intercept [subject = Base]	Variance	1083.880710	348.034481	3.114	.002

a. Dependent Variable: reaction time.

Estimates of Covariance Parameters[a]

Parameter		95% Confidence Interval	
		Lower Bound	Upper Bound
Residual		16278.811089	18462.274068
Intercept [subject = Participant]	Variance	3121.833140	8533.086156
Intercept [subject = Base]	Variance	577.644137	2033.773596

a. Dependent Variable: reaction time.

Covariance Matrix for Estimates of Covariance Parameters[a]

Parameter			Intercept [subject = Participant]	Intercept [subject = Base]
		Residual	Variance	Variance
Residual		3.098577E5	-5178.514039	-4887.583688
Intercept [subject = Participant]	Variance	-5178.514039	1.752873E6	1717.342846
Intercept [subject = Base]	Variance	-4887.583688	1717.342846	1.211280E5

a. Dependent Variable: reaction time.

Estimated Marginal Means

Form

Estimates[a]

Form				95% Confidence Interval	
	Mean	Std. Error	df	Lower Bound	Upper Bound
base	590.244	14.270	50.410	561.587	618.901
deri	685.451	14.987	61.282	655.484	715.417
infl	645.890	14.877	59.515	616.126	675.653

a. Dependent Variable: reaction time.

Pairwise Comparisons[b]

(I) Form	(J) Form	Mean Difference (I-J)	Std. Error	df	Sig.[a]
base	deri	-95.207*	7.396	1945.607	.000
	infl	-55.646*	7.173	1943.058	.000
deri	base	95.207*	7.396	1945.607	.000
	infl	39.561*	8.563	1949.081	.000
infl	base	55.646*	7.173	1943.058	.000
	deri	-39.561*	8.563	1949.081	.000

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Sidak.

b. Dependent Variable: reaction time.

Pairwise Comparisons[b]

(I) Form	(J) Form	95% Confidence Interval for Difference[a]	
		Lower Bound	Upper Bound
base	deri	-112.881	-77.532
	infl	-72.788	-38.503
deri	base	77.532	112.881
	infl	19.097	60.025
infl	base	38.503	72.788
	deri	-60.025	-19.097

Based on estimated marginal means

a. Adjustment for multiple comparisons: Sidak.

b. Dependent Variable: reaction time.

Univariate Tests[a]

Numerator df	Denominator df	F	Sig.
2	1945.405	90.735	.000

The F tests the effect of Form. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Dependent Variable: reaction time.

```
DJMIXED /MODELSUMMARY
              NAME = 'posthoc on form' .
```

DJMIXED.modelsummary

Notes

Output Created		28-Mar-2010 16:43:02
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Syntax		BEGIN PROGRAM PYTHON.
Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.015

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Fixed Effects

	Model name: posthoc on form			
	Model Term	beta	F	p
1	Intercept	645.889586	2086.973	.000
2	Form	--	90.735	.000

Random Effects

	Model name: posthoc on form				
	Model Term	Adjustment for	Variance	Wald Z	p
1	Intercept	Participant	5161.286	3.898	.000
2	Intercept	Base	1083.881	3.114	.002
3	Error	--	17336.201	31.144	.000

```
DJMIXED /MIXEDMODEL
             DV = rt
             PREDICTORS = form
             PPS = Participant
             ITEMS = Base
             NAME = 'contrast on form'
             CONTRAST = form | 0 1 -1 | 1 -0.5 -0.5
              OUTPUT = full .
== Submitting DJMIXED MIXEDMODEL 'contrast on form' ==
MIXED rt
 BY form
 /FIXED= form | SSTYPE(3)
 /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE(VC)
 /RANDOM=INTERCEPT | SUBJECT(Base) COVTYPE(VC)
 /TEST 'contrasts on form'  form 0 1 -1; form 1 -0.5 -0.5
```

```
 /METHOD=ML
/PRINT=SOLUTION  TESTCOV  COVB
/CRITERIA=CIN(95) MXITER(10000) MXSTEP(50) SCORING(1) SINGULAR(0.0000000000
01)
HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
 .
```

Mixed Model Analysis

Notes

Output Created		28-Mar-2010 16:43:02
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		MIXED rt BY form /FIXED= form | SSTYPE(3) /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE (VC) /RANDOM=INTERCEPT | SUBJECT(Base) COVTYPE(VC) /TEST 'contrasts on form' form 0 1 -1; form 1 -0.5 -0.5 /METHOD=ML /PRINT=SOLUTION TESTCOV COVB /CRITERIA=CIN(95) MXITER (10000) MXSTEP(50) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE) .
Resources	Processor Time	00:00:00.063
	Elapsed Time	00:00:00.111

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Model Dimension[b]

		Number of Levels	Covariance Structure	Number of Parameters	Subject Variables
Fixed Effects	Intercept	1		1	
	Form	3		2	
Random Effects	Intercept[a]	1	Variance Components	1	Participant
	Intercept[a]	1	Variance Components	1	Base
Residual				1	
Total		6		6	

a. As of version 11.5, the syntax rules for the RANDOM subcommand have changed. Your command syntax may yield results that differ from those produced by prior versions. If you are using version 11 syntax, please consult the current syntax reference guide for more information.

b. Dependent Variable: reaction time.

Information Criteria[a]

-2 Log Likelihood	25395.216
Akaike's Information Criterion (AIC)	25407.216
Hurvich and Tsai's Criterion (AICC)	25407.258
Bozdogan's Criterion (CAIC)	25446.834
Schwarz's Bayesian Criterion (BIC)	25440.834

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: reaction time.

Fixed Effects

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	46.975	2086.973	.000
Form	2	1945.435	90.735	.000

a. Dependent Variable: reaction time.

Estimates of Fixed Effects[b]

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	645.889586	14.877137	59.515	43.415	.000
[Form=0]	-55.645523	7.173169	1943.058	-7.757	.000
[Form=1]	39.561024	8.563073	1949.081	4.620	.000
[Form=2]	0[a]	0	.	.	.

a. This parameter is set to zero because it is redundant.

b. Dependent Variable: reaction time.

Estimates of Fixed Effects[b]

Parameter	95% Confidence Interval	
	Lower Bound	Upper Bound
Intercept	616.125889	675.653283
[Form=0]	-69.713439	-41.577606
[Form=1]	22.767281	56.354767
[Form=2]	.	.

b. Dependent Variable: reaction time.

Covariance Matrix for Estimates of Fixed Effects[b]

Parameter	Intercept	[Form=0]	[Form=1]	[Form=2]
Intercept	221.329208	-34.570524	-35.016719	0[a]
[Form=0]	-34.570524	51.454355	35.041019	0[a]
[Form=1]	-35.016719	35.041019	73.326218	0[a]
[Form=2]	0[a]	0[a]	0[a]	0[a]

a. The covariance is set to zero because it is associated with a redundant parameter.

b. Dependent Variable: reaction time.

Covariance Parameters

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.
Residual		17336.201194	556.648590	31.144	.000
Intercept [subject = Participant]	Variance	5161.285804	1323.960920	3.898	.000
Intercept [subject = Base]	Variance	1083.880710	348.034481	3.114	.002

a. Dependent Variable: reaction time.

Estimates of Covariance Parameters[a]

Parameter		95% Confidence Interval	
		Lower Bound	Upper Bound
Residual		16278.811089	18462.274068
Intercept [subject = Participant]	Variance	3121.833140	8533.086156
Intercept [subject = Base]	Variance	577.644137	2033.773596

a. Dependent Variable: reaction time.

Covariance Matrix for Estimates of Covariance Parameters[a]

Parameter			Intercept [subject = Participant]	Intercept [subject = Base]
		Residual	Variance	Variance
Residual		3.098577E5	-5178.514039	-4887.583688
Intercept [subject = Participant]	Variance	-5178.514039	1.752873E6	1717.342846
Intercept [subject = Base]	Variance	-4887.583688	1717.342846	1.211280E5

a. Dependent Variable: reaction time.

Custom Hypothesis Test (contrasts on form)

Contrast Estimates[a,b]

Contrast	Estimate	Std. Error	df	Test Value	t	Sig.
L1	39.561024	8.563073	1949.081	0	4.620	.000
L2	-75.426035	5.894480	1941.820	0	-12.796	.000

a. contrasts on form

b. Dependent Variable: reaction time.

Contrast Estimates[a,b]

Contrast	95% Confidence Interval	
	Lower Bound	Upper Bound
L1	22.767281	56.354767
L2	-86.986208	-63.865861

a. contrasts on form

b. Dependent Variable: reaction time.

Test of Contrasts[a]

Source	Numerator df	Denominator df	F	Sig.
contrasts on form	2	1945.400	90.735	.000

a. Dependent Variable: reaction time.

```
*** PART 4 : regression diagnostics and transforms **** .

DJMIXED /MIXEDMODEL
```

```
               DV = rt
               PREDICTORS = priming morph priming*morph
               PPS = Participant
               ITEMS = Word
               NAME = 'interaction'
               PLOT = residuals
               OUTPUT = full .
== Submitting DJMIXED MIXEDMODEL 'interaction' ==
MIXED rt
 BY morph priming
 /FIXED= priming morph priming*morph | SSTYPE(3)
 /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE(VC)
 /RANDOM=INTERCEPT | SUBJECT(Word) COVTYPE(VC)
  /SAVE PRED(predicted) RESID(residual)
 /METHOD=ML
/PRINT=SOLUTION  TESTCOV  COVB
/CRITERIA=CIN(95) MXITER(10000) MXSTEP(50) SCORING(1) SINGULAR(0.0000000000
01)
HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
 .

DESCRIPTIVES VARIABLES=residual  (Zresidual)  /SAVE .
EXAMINE VARIABLES=residual /PLOT =    histogram npplot .
GRAPH  /SCATTERPLOT(bivar)=predicted WITH Zresidual .
Removed old model by this name
```

Mixed Model Analysis

Notes

Output Created		28-Mar-2010 16:44:56
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		MIXED rt BY morph priming /FIXED= priming morph priming*morph | SSTYPE(3) /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE (VC) /RANDOM=INTERCEPT | SUBJECT(Word) COVTYPE(VC) /SAVE PRED(predicted) RESID (residual) /METHOD=ML /PRINT=SOLUTION TESTCOV COVB /CRITERIA=CIN(95) MXITER (10000) MXSTEP(50) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE) .
Resources	Processor Time	00:00:00.625
	Elapsed Time	00:00:00.625
Variables Created	predicted	Predicted Values
	residual	Residuals

[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav

Model Dimension[b]

		Number of Levels	Covariance Structure	Number of Parameters	Subject Variables
Fixed Effects	Intercept	1		1	
	Priming	2		1	
	Morph	2		1	
	Morph * Priming	4		1	
Random Effects	Intercept[a]	1	Variance Components	1	Participant
	Intercept[a]	1	Variance Components	1	Word
Residual				1	
Total		11		7	

a. As of version 11.5, the syntax rules for the RANDOM subcommand have changed. Your command syntax may yield results that differ from those produced by prior versions. If you are using version 11 syntax, please consult the current syntax reference guide for more information.

b. Dependent Variable: reaction time.

Information Criteria[a]

-2 Log Likelihood	25399.164
Akaike's Information Criterion (AIC)	25413.164
Hurvich and Tsai's Criterion (AICC)	25413.220
Bozdogan's Criterion (CAIC)	25459.384
Schwarz's Bayesian Criterion (BIC)	25452.384

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: reaction time.

Fixed Effects

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	43.046	2176.965	.000
Priming	1	71.533	47.905	.000
Morph	1	183.880	9.218	.003
Morph * Priming	1	174.402	4.199	.042

a. Dependent Variable: reaction time.

Estimates of Fixed Effects[b]

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	586.126716	15.537272	69.386	37.724	.000
[Priming=1]	59.551195	13.422865	91.146	4.437	.000
[Priming=2]	0[a]	0	.	.	.
[Morph=1]	8.288684	8.271139	1912.627	1.002	.316
[Morph=2]	0[a]	0	.	.	.
[Morph=1] * [Priming=1]	32.436236	15.828573	174.402	2.049	.042
[Morph=1] * [Priming=2]	0[a]	0	.	.	.
[Morph=2] * [Priming=1]	0[a]	0	.	.	.
[Morph=2] * [Priming=2]	0[a]	0	.	.	.

a. This parameter is set to zero because it is redundant.

b. Dependent Variable: reaction time.

Estimates of Fixed Effects[b]

Parameter	95% Confidence Interval	
	Lower Bound	Upper Bound
Intercept	555.133786	617.119646
[Priming=1]	32.888898	86.213493
[Priming=2]	.	.
[Morph=1]	-7.932716	24.510084
[Morph=2]	.	.
[Morph=1] * [Priming=1]	1.196021	63.676452
[Morph=1] * [Priming=2]	.	.
[Morph=2] * [Priming=1]	.	.
[Morph=2] * [Priming=2]	.	.

b. Dependent Variable: reaction time.

Covariance Matrix for Estimates of Fixed Effects[b]

Parameter	Intercept	[Priming=1]	[Priming=2]	[Morph=1]	[Morph=2]
Intercept	241.406822	-89.636816	0[a]	-33.560644	0[a]
[Priming=1]	-89.636816	180.173309	0[a]	32.543018	0[a]
[Priming=2]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=1]	-33.560644	32.543018	0[a]	68.411741	0[a]
[Morph=2]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=1] * [Priming=1]	32.362472	-122.968541	0[a]	-65.892087	0[a]
[Morph=1] * [Priming=2]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=2] * [Priming=1]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=2] * [Priming=2]	0[a]	0[a]	0[a]	0[a]	0[a]

a. The covariance is set to zero because it is associated with a redundant parameter.

b. Dependent Variable: reaction time.

Covariance Matrix for Estimates of Fixed Effects[b]

Parameter	[Morph=1] * [Priming=1]	[Morph=1] * [Priming=2]	[Morph=2] * [Priming=1]	[Morph=2] * [Priming=2]
Intercept	32.362472	0[a]	0[a]	0[a]
[Priming=1]	-122.968541	0[a]	0[a]	0[a]
[Priming=2]	0[a]	0[a]	0[a]	0[a]
[Morph=1]	-65.892087	0[a]	0[a]	0[a]
[Morph=2]	0[a]	0[a]	0[a]	0[a]
[Morph=1] * [Priming=1]	250.543737	0[a]	0[a]	0[a]
[Morph=1] * [Priming=2]	0[a]	0[a]	0[a]	0[a]
[Morph=2] * [Priming=1]	0[a]	0[a]	0[a]	0[a]
[Morph=2] * [Priming=2]	0[a]	0[a]	0[a]	0[a]

a. The covariance is set to zero because it is associated with a redundant parameter.

b. Dependent Variable: reaction time.

Covariance Parameters

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.
Residual		16880.086679	552.518464	30.551	.000
Intercept [subject = Participant]	Variance	5143.627093	1317.514969	3.904	.000
Intercept [subject = Word]	Variance	1773.913561	415.145763	4.273	.000

a. Dependent Variable: reaction time.

Estimates of Covariance Parameters[a]

Parameter		95% Confidence Interval	
		Lower Bound	Upper Bound
Residual		15831.175754	17998.494283
Intercept [subject = Participant]	Variance	3113.424621	8497.684348
Intercept [subject = Word]	Variance	1121.314158	2806.322654

a. Dependent Variable: reaction time.

Covariance Matrix for Estimates of Covariance Parameters[a]

Parameter		Residual	Intercept [subject = Participant] Variance	Intercept [subject = Word] Variance
Residual		3.052767E5	-4663.172483	-2.168719E4
Intercept [subject = Participant]	Variance	-4663.172483	1.735846E6	-283.079789
Intercept [subject = Word]	Variance	-2.168719E4	-283.079789	1.723460E5

a. Dependent Variable: reaction time.

Descriptives

Notes

Output Created		28-Mar-2010 16:44:57
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=residual (Zresidual) /SAVE .
Resources	Processor Time	00:00:00.031
	Elapsed Time	00:00:00.031
Variables Created or Modified	Zresidual	Zscore: Residuals

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Residuals	2004	-327.6000	609.8591	.000000	126.8756537
Valid N (listwise)	2004				

Explore

Notes

Output Created		28-Mar-2010 16:44:57
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User-defined missing values for dependent variables are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any dependent variable or factor used.
Syntax		EXAMINE VARIABLES=residual /PLOT = histogram npplot .
Resources	Processor Time	00:00:01.079
	Elapsed Time	00:00:01.500

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Total Sample

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Residuals	2004	100.0%	0	.0%	2004	100.0%

Descriptives

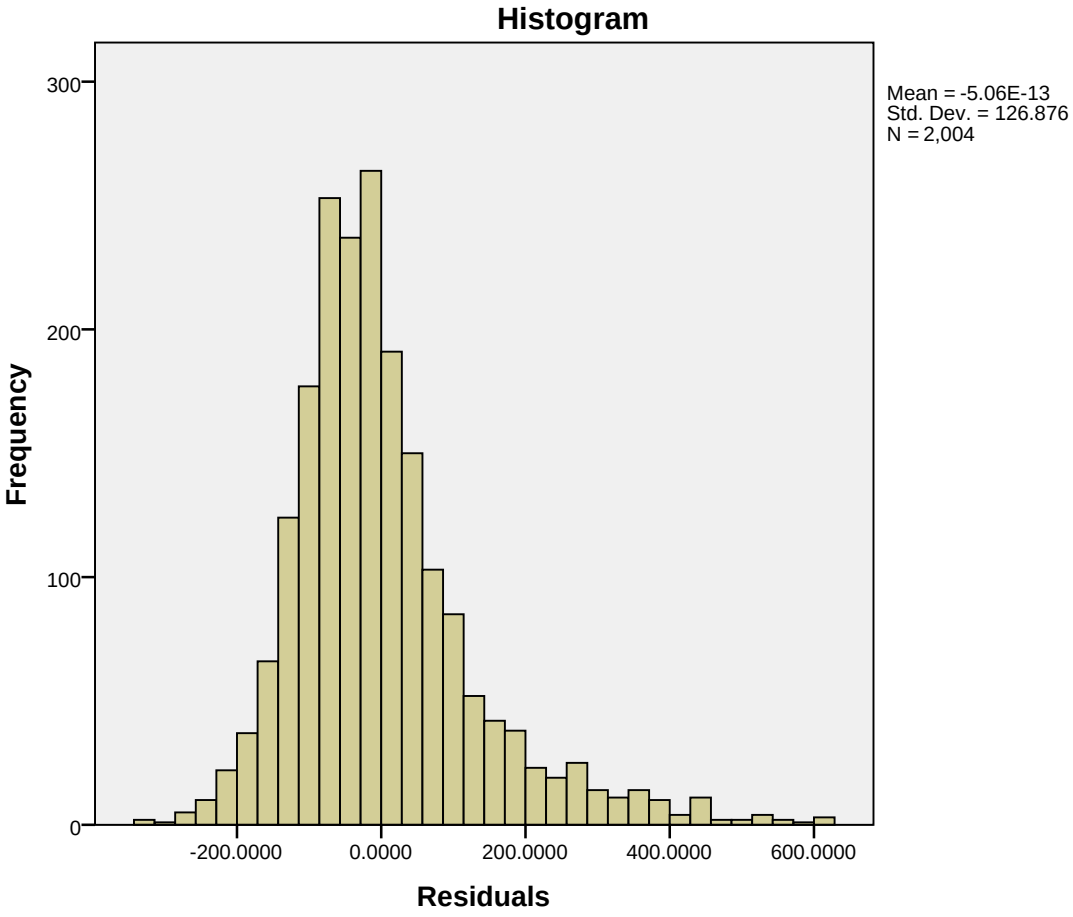
			Statistic	Std. Error
Residuals	Mean		.000000	2.8341931
	95% Confidence Interval for Mean	Lower Bound	-5.558275	
		Upper Bound	5.558275	
	5% Trimmed Mean		-9.351965	
	Median		-21.229887	
	Variance		16097.432	
	Std. Deviation		126.8756537	
	Minimum		-327.6000	
	Maximum		609.8591	
	Range		937.4592	
	Interquartile Range		128.6131	
	Skewness		1.362	.055
	Kurtosis		3.051	.109

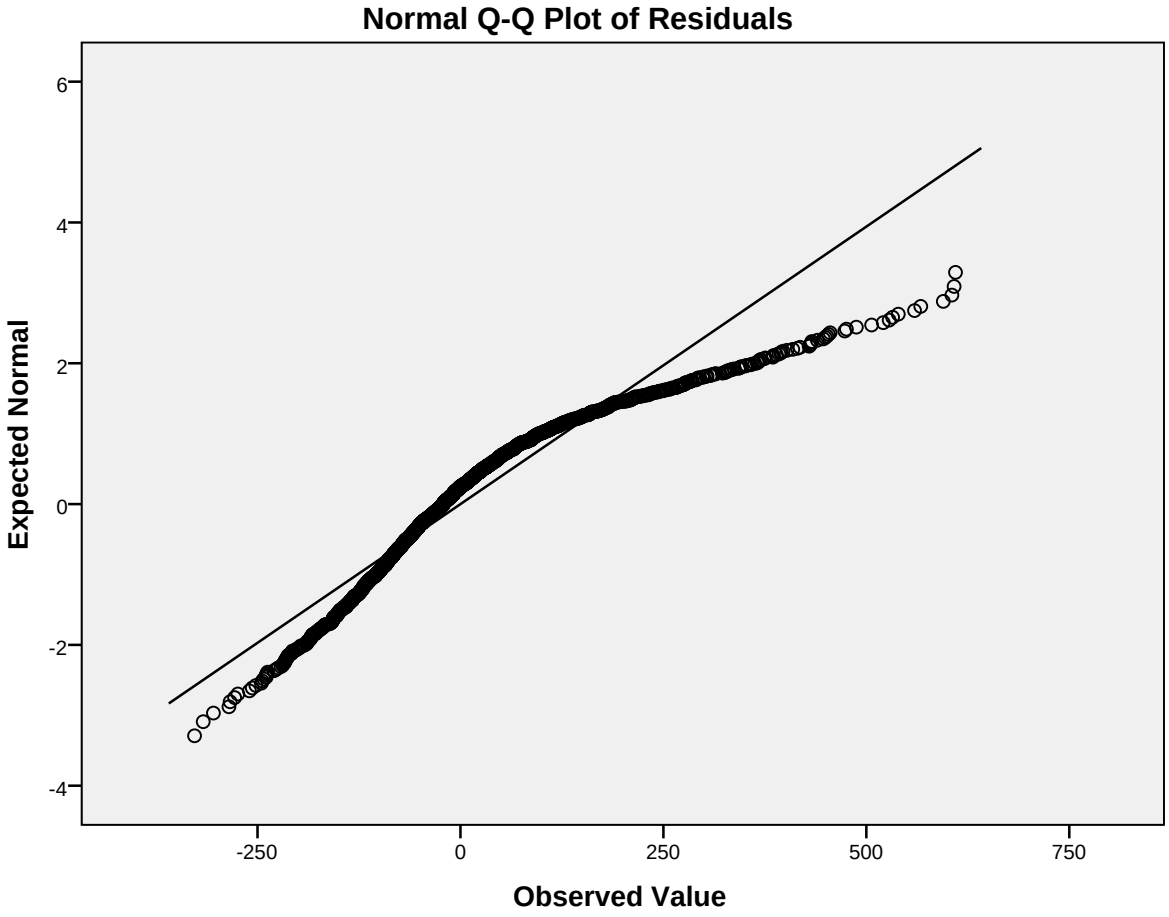
Tests of Normality

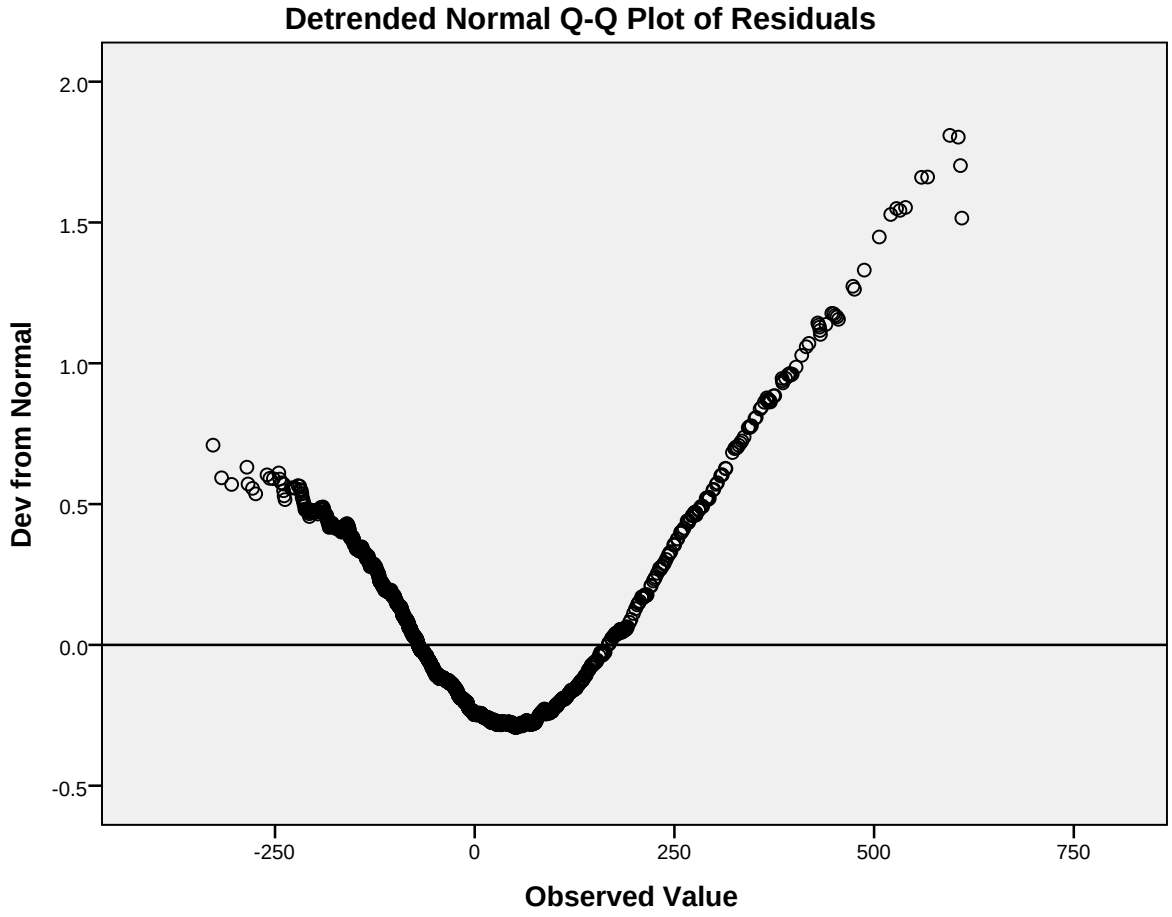
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Residuals	.106	2004	.000	.911	2004	.000

a. Lilliefors Significance Correction

Residuals

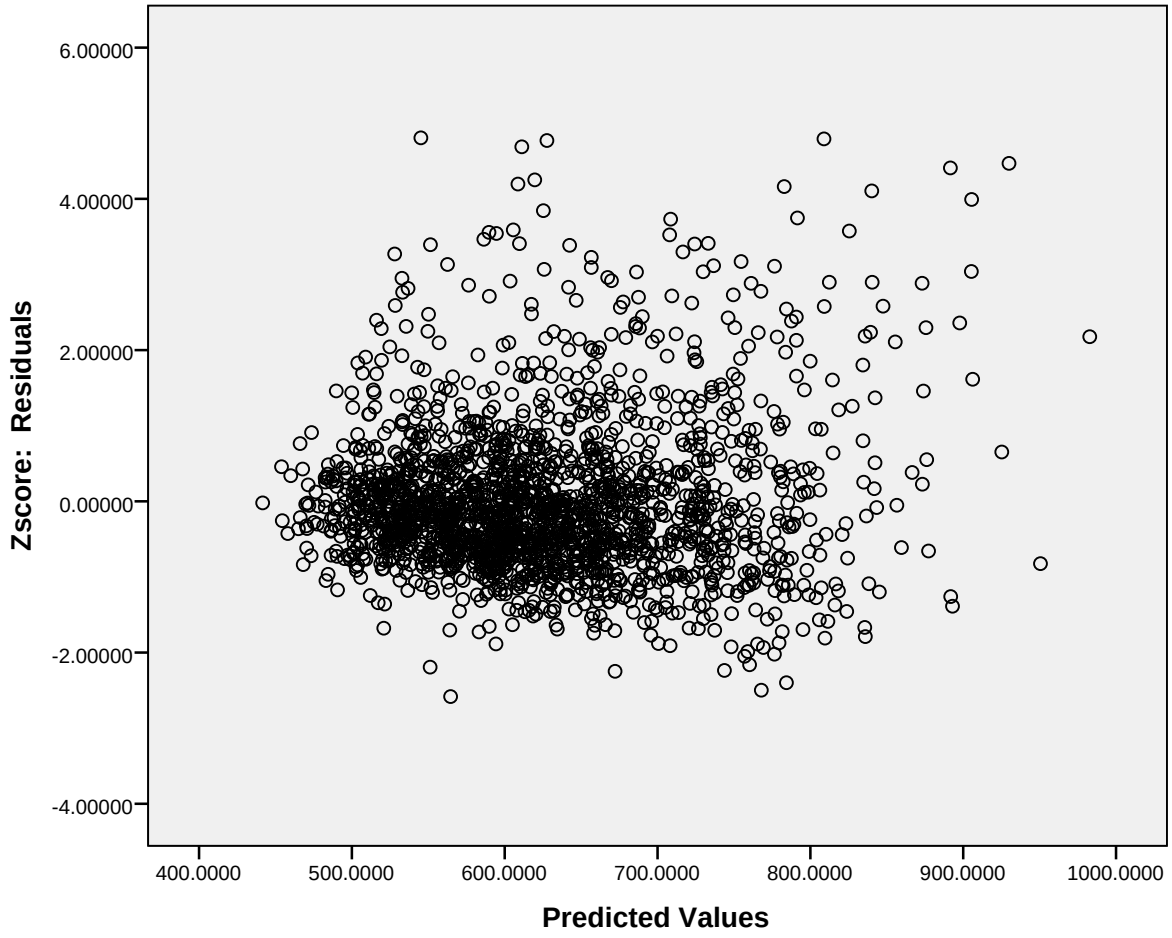

Histogram
Mean = -5.06E-13
Std. Dev. = 126.876
N = 2,004
Frequency
300
200
100
0
-200.0000
0.0000
200.0000
400.0000
600.0000
Residuals


Normal Q-Q Plot of Residuals
Expected Normal
6
4
2
0
-2
-4
-250
0
250
500
750
Observed Value



Graph

[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav




```
compute logrt = ln(rt-100) .
execute.
DJMIXED /MIXEDMODEL
              DV = logrt
              PREDICTORS = priming morph
              PPS = Participant
              ITEMS = Word
              NAME = 'log main effects'
              PLOT = residuals
              OUTPUT = full .
== Submitting DJMIXED MIXEDMODEL 'log main effects' ==
DELETE VARIABLES predicted residual .
MIXED logrt
 BY morph priming
 /FIXED= priming morph | SSTYPE(3)
 /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE(VC)
 /RANDOM=INTERCEPT | SUBJECT(Word) COVTYPE(VC)
  /SAVE PRED(predicted) RESID(residual)
 /METHOD=ML
/PRINT=SOLUTION  TESTCOV  COVB
```

```
/CRITERIA=CIN(95) MXITER(10000) MXSTEP(50) SCORING(1) SINGULAR(0.0000000000
01)
HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
 .
DELETE VARIABLES Zresidual .

DESCRIPTIVES VARIABLES=residual  (Zresidual)  /SAVE .
EXAMINE VARIABLES=residual /PLOT =    histogram npplot .
GRAPH  /SCATTERPLOT(bivar)=predicted WITH Zresidual .
```

Mixed Model Analysis

Notes

Output Created		28-Mar-2010 16:46:30
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		MIXED logrt BY morph priming /FIXED= priming morph | SSTYPE (3) /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE (VC) /RANDOM=INTERCEPT | SUBJECT(Word) COVTYPE(VC) /SAVE PRED(predicted) RESID (residual) /METHOD=ML /PRINT=SOLUTION TESTCOV COVB /CRITERIA=CIN(95) MXITER (10000) MXSTEP(50) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE) .
Resources	Processor Time	00:00:00.484
	Elapsed Time	00:00:00.484
Variables Created	predicted	Predicted Values
	residual	Residuals

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Model Dimension[b]

		Number of Levels	Covariance Structure	Number of Parameters	Subject Variables
Fixed Effects	Intercept	1		1	
	Priming	2		1	
	Morph	2		1	
Random Effects	Intercept[a]	1	Variance Components	1	Participant
	Intercept[a]	1	Variance Components	1	Word
Residual				1	
Total		7		6	

a. As of version 11.5, the syntax rules for the RANDOM subcommand have changed. Your command syntax may yield results that differ from those produced by prior versions. If you are using version 11 syntax, please consult the current syntax reference guide for more information.

b. Dependent Variable: logrt.

Information Criteria[a]

-2 Log Likelihood	-136.006
Akaike's Information Criterion (AIC)	-124.006
Hurvich and Tsai's Criterion (AICC)	-123.964
Bozdogan's Criterion (CAIC)	-84.389
Schwarz's Bayesian Criterion (BIC)	-90.389

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: logrt.

Fixed Effects

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	41.465	68354.374	.000
Priming	1	70.857	59.573	.000
Morph	1	947.777	6.625	.010

a. Dependent Variable: logrt.

Estimates of Fixed Effects[b]

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	6.144297	.026850	61.867	228.838	.000
[Priming=1]	.139447	.018067	70.857	7.718	.000
[Priming=2]	0[a]	0	.	.	.
[Morph=1]	.031230	.012134	947.777	2.574	.010
[Morph=2]	0[a]	0	.	.	.

a. This parameter is set to zero because it is redundant.

b. Dependent Variable: logrt.

Estimates of Fixed Effects[b]

Parameter	95% Confidence Interval	
	Lower Bound	Upper Bound
Intercept	6.090623	6.197972
[Priming=1]	.103421	.175473
[Priming=2]	.	.
[Morph=1]	.007418	.055042
[Morph=2]	.	.

b. Dependent Variable: logrt.

Covariance Matrix for Estimates of Fixed Effects[b]

Parameter	Intercept	[Priming=1]	[Priming=2]	[Morph=1]	[Morph=2]
Intercept	.000721	-.000200	0[a]	-7.219419E-5	0[a]
[Priming=1]	-.000200	.000326	0[a]	6.452261E-7	0[a]
[Priming=2]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=1]	-7.219419E-5	6.452261E-7	0[a]	.000147	0[a]
[Morph=2]	0[a]	0[a]	0[a]	0[a]	0[a]

a. The covariance is set to zero because it is associated with a redundant parameter.

b. Dependent Variable: logrt.

Covariance Parameters

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.
Residual		.049461	.001619	30.550	.000
Intercept [subject = Participant]	Variance	.016528	.004214	3.922	.000
Intercept [subject = Word]	Variance	.004689	.001136	4.126	.000

a. Dependent Variable: logrt.

Estimates of Covariance Parameters[a]

Parameter		95% Confidence Interval	
		Lower Bound	Upper Bound
Residual		.046388	.052739
Intercept [subject = Participant]	Variance	.010028	.027242
Intercept [subject = Word]	Variance	.002916	.007540

a. Dependent Variable: logrt.

Covariance Matrix for Estimates of Covariance Parameters[a]

Parameter		Residual	Intercept [subject = Participant] Variance	Intercept [subject = Word] Variance
Residual		2.621297E-6	-4.129972E-8	-1.828964E-7
Intercept [subject = Participant]	Variance	-4.129972E-8	1.775628E-5	7.858426E-10
Intercept [subject = Word]	Variance	-1.828964E-7	7.858426E-10	1.291324E-6

a. Dependent Variable: logrt.

Descriptives

Notes

Output Created		28-Mar-2010 16:46:30
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=residual (Zresidual) /SAVE .
Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.017
Variables Created or Modified	Zresidual	Zscore: Residuals

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Residuals	2004	-1.1662	.9300	.000000	.2172906
Valid N (listwise)	2004				

Explore

Notes

Output Created		28-Mar-2010 16:46:30
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User-defined missing values for dependent variables are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any dependent variable or factor used.
Syntax		EXAMINE VARIABLES=residual /PLOT = histogram npplot .
Resources	Processor Time	00:00:00.890
	Elapsed Time	00:00:00.968

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Total Sample

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Residuals	2004	100.0%	0	.0%	2004	100.0%

Descriptives

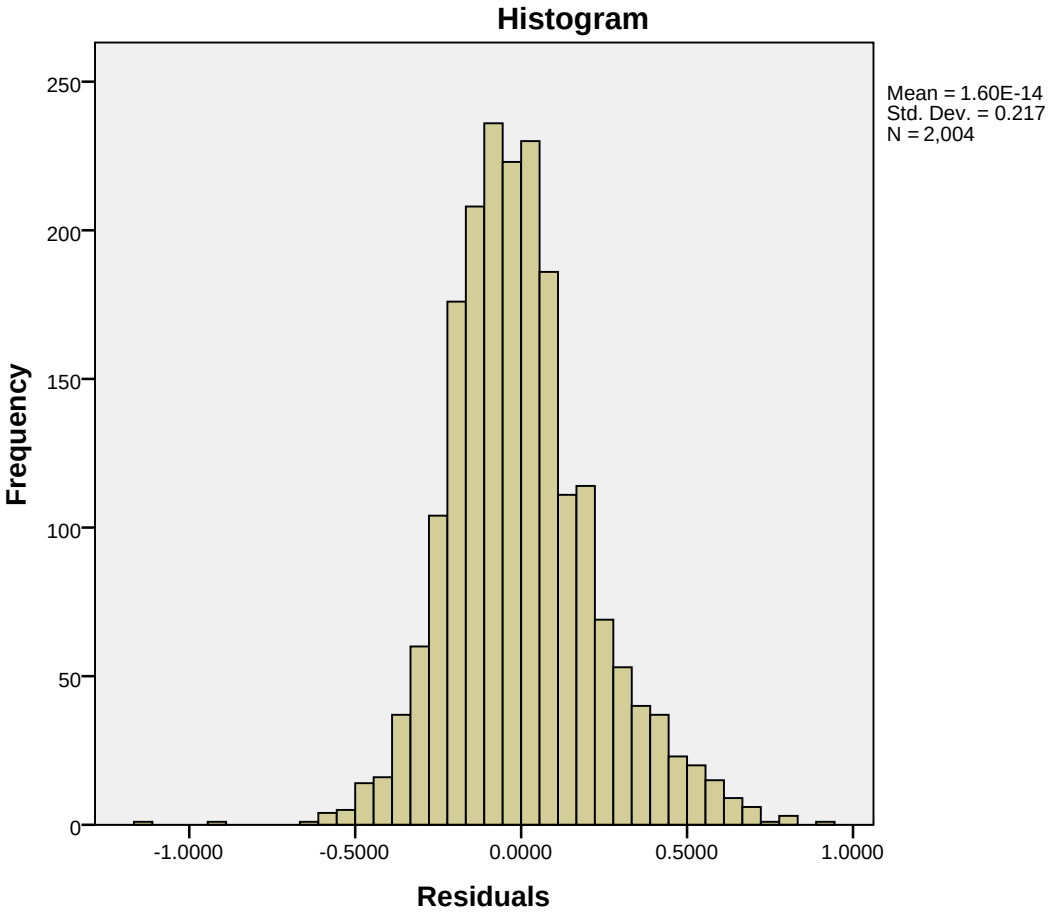
			Statistic	Std. Error
Residuals	Mean		.000000	.0048539
	95% Confidence Interval for Mean	Lower Bound	-.009519	
		Upper Bound	.009519	
	5% Trimmed Mean		-.006941	
	Median		-.018683	
	Variance		.047	
	Std. Deviation		.2172906	
	Minimum		-1.1662	
	Maximum		.9300	
	Range		2.0962	
	Interquartile Range		.2521	
	Skewness		.484	.055
	Kurtosis		1.243	.109

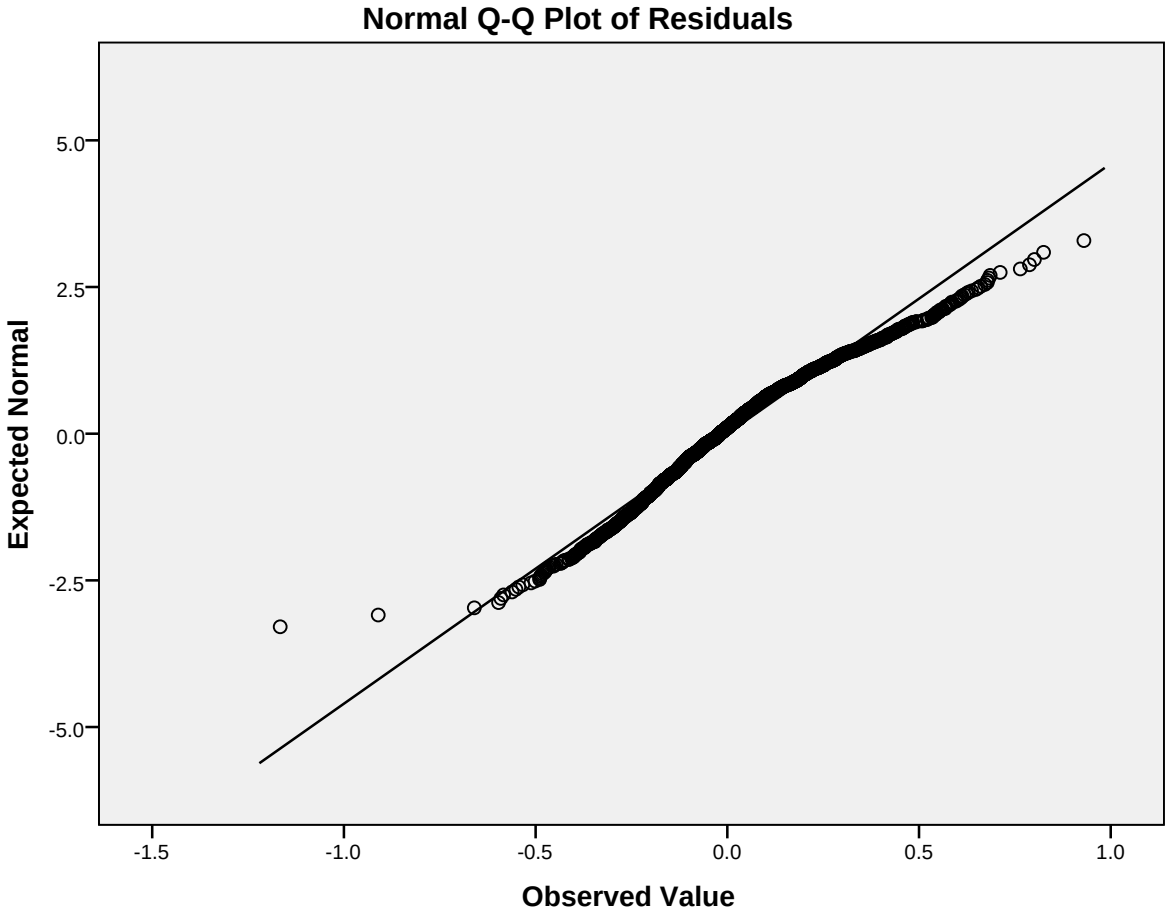
Tests of Normality

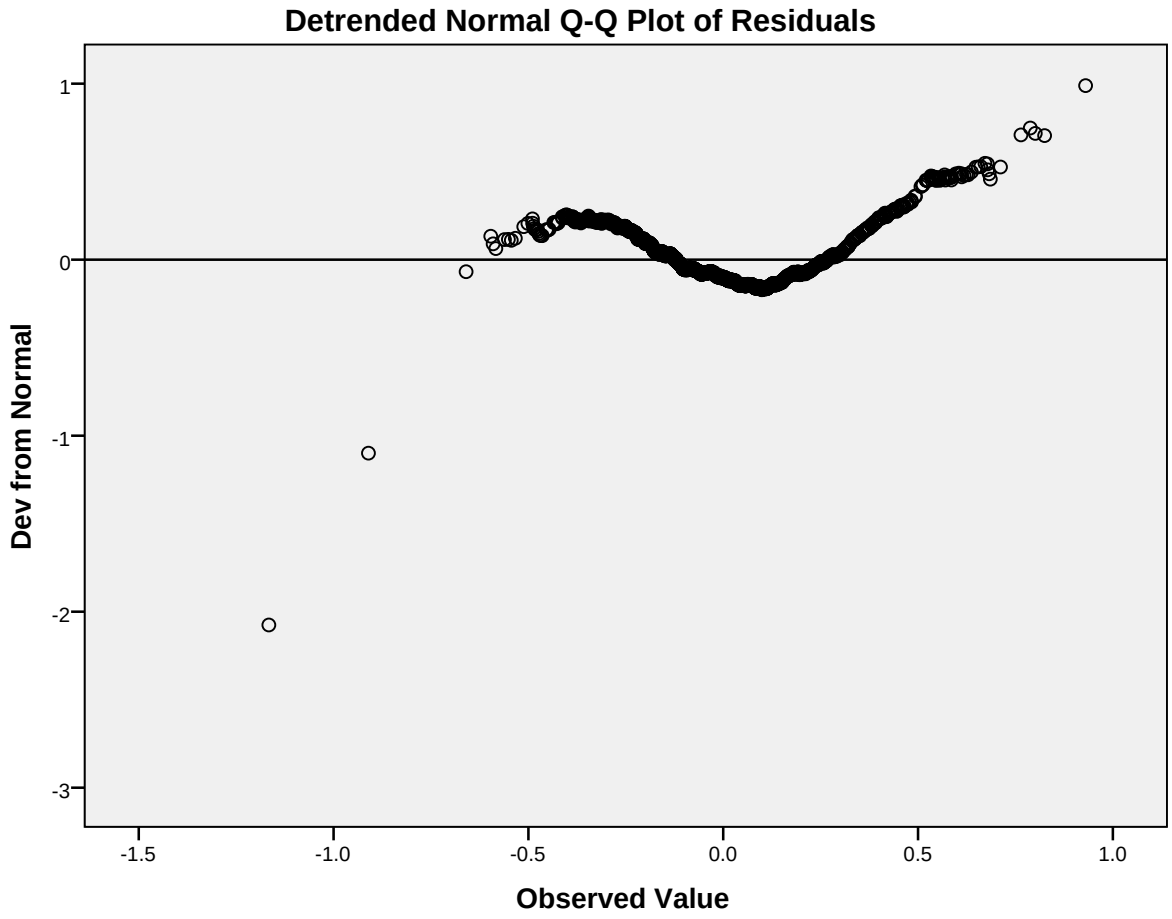
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Residuals	.059	2004	.000	.977	2004	.000

a. Lilliefors Significance Correction

Residuals

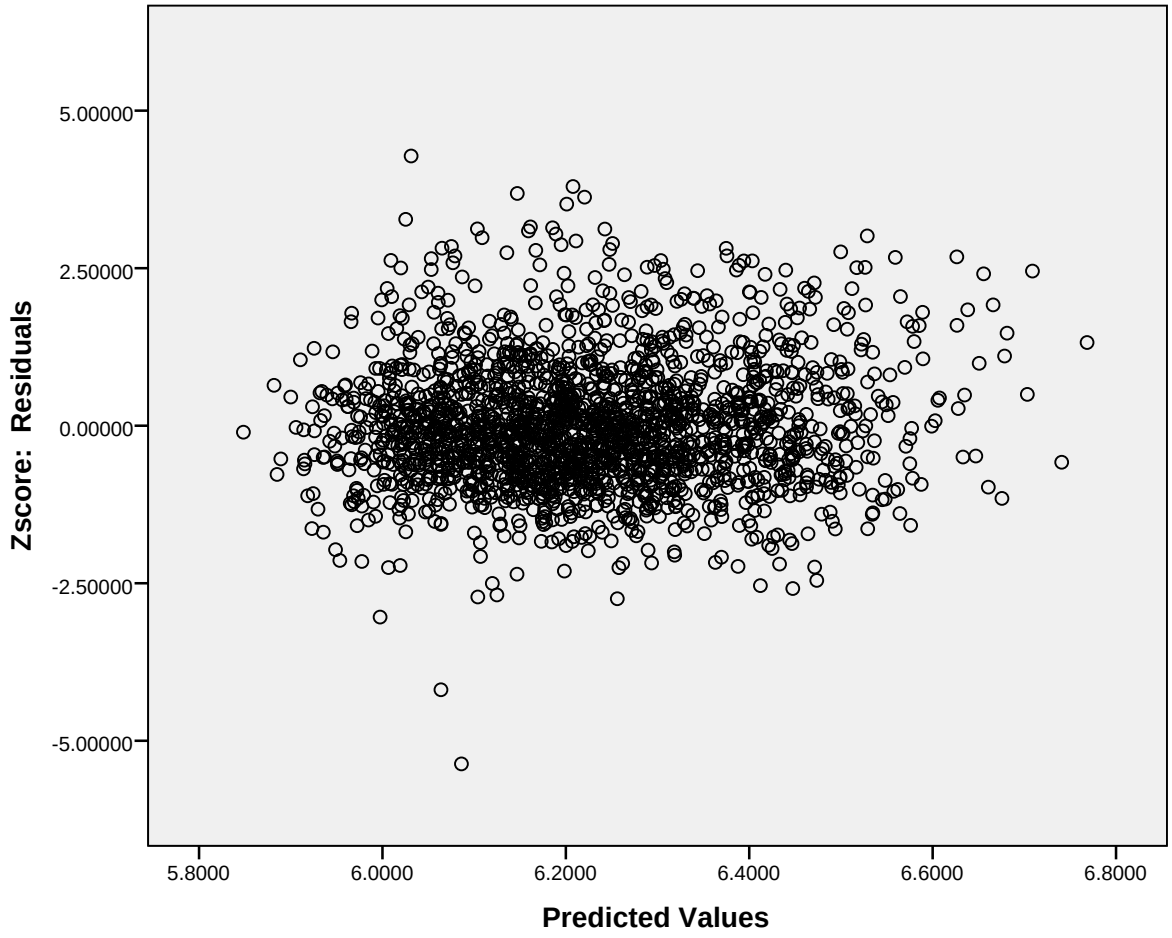

Histogram
Mean = 1.60E-14
Std. Dev. = 0.217
N = 2,004
Frequency
250
200
150
100
50
0
-1.0000
-0.5000
0.0000
0.5000
1.0000
Residuals


Normal Q-Q Plot of Residuals
Expected Normal
5.0
2.5
0.0
-2.5
-5.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
Observed Value



Graph

[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav




```
DJMIXED /MIXEDMODEL
              DV = logrt
              PREDICTORS = priming morph priming*morph
              PPS = Participant
              ITEMS = Word
              NAME = 'log interaction'
              PLOT = residuals
              OUTPUT = full  .
== Submitting DJMIXED MIXEDMODEL 'log interaction' ==
DELETE VARIABLES predicted residual .
MIXED logrt
 BY morph priming
 /FIXED= priming morph priming*morph | SSTYPE(3)
 /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE(VC)
 /RANDOM=INTERCEPT | SUBJECT(Word) COVTYPE(VC)
  /SAVE PRED(predicted) RESID(residual)
 /METHOD=ML
/PRINT=SOLUTION  TESTCOV  COVB
/CRITERIA=CIN(95) MXITER(10000) MXSTEP(50) SCORING(1) SINGULAR(0.0000000000
01)
```

```
HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
 .
DELETE VARIABLES Zresidual .

DESCRIPTIVES VARIABLES=residual  (Zresidual)  /SAVE .
EXAMINE VARIABLES=residual /PLOT =    histogram npplot .
GRAPH  /SCATTERPLOT(bivar)=predicted WITH Zresidual .
```

Mixed Model Analysis

Notes

Output Created		28-Mar-2010 16:46:33
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		MIXED logrt BY morph priming /FIXED= priming morph priming*morph | SSTYPE(3) /RANDOM=INTERCEPT | SUBJECT(Participant) COVTYPE (VC) /RANDOM=INTERCEPT | SUBJECT(Word) COVTYPE(VC) /SAVE PRED(predicted) RESID (residual) /METHOD=ML /PRINT=SOLUTION TESTCOV COVB /CRITERIA=CIN(95) MXITER (10000) MXSTEP(50) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0, ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE) .
Resources	Processor Time	00:00:00.531
	Elapsed Time	00:00:00.548
Variables Created	predicted	Predicted Values
	residual	Residuals

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Model Dimension[b]

		Number of Levels	Covariance Structure	Number of Parameters	Subject Variables
Fixed Effects	Intercept	1		1	
	Priming	2		1	
	Morph	2		1	
	Morph * Priming	4		1	
Random Effects	Intercept[a]	1	Variance Components	1	Participant
	Intercept[a]	1	Variance Components	1	Word
Residual				1	
Total		11		7	

a. As of version 11.5, the syntax rules for the RANDOM subcommand have changed. Your command syntax may yield results that differ from those produced by prior versions. If you are using version 11 syntax, please consult the current syntax reference guide for more information.

b. Dependent Variable: logrt.

Information Criteria[a]

-2 Log Likelihood	-140.266
Akaike's Information Criterion (AIC)	-126.266
Hurvich and Tsai's Criterion (AICC)	-126.210
Bozdogan's Criterion (CAIC)	-80.046
Schwarz's Bayesian Criterion (BIC)	-87.046

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: logrt.

Fixed Effects

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	41.121	68663.063	.000
Priming	1	72.059	61.985	.000
Morph	1	199.589	10.529	.001
Morph * Priming	1	189.375	4.300	.039

a. Dependent Variable: logrt.

Estimates of Fixed Effects[b]

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	6.151660	.026958	63.637	228.194	.000
[Priming=1]	.112742	.021927	94.146	5.142	.000
[Priming=2]	0[a]	0	.	.	.
[Morph=1]	.016235	.014148	1914.540	1.148	.251
[Morph=2]	0[a]	0	.	.	.
[Morph=1] * [Priming=1]	.054341	.026205	189.375	2.074	.039
[Morph=1] * [Priming=2]	0[a]	0	.	.	.
[Morph=2] * [Priming=1]	0[a]	0	.	.	.
[Morph=2] * [Priming=2]	0[a]	0	.	.	.

a. This parameter is set to zero because it is redundant.

b. Dependent Variable: logrt.

Estimates of Fixed Effects[b]

Parameter	95% Confidence Interval	
	Lower Bound	Upper Bound
Intercept	6.097799	6.205521
[Priming=1]	.069206	.156278
[Priming=2]	.	.
[Morph=1]	-.011512	.043983
[Morph=2]	.	.
[Morph=1] * [Priming=1]	.002651	.106032
[Morph=1] * [Priming=2]	.	.
[Morph=2] * [Priming=1]	.	.
[Morph=2] * [Priming=2]	.	.

b. Dependent Variable: logrt.

Covariance Matrix for Estimates of Fixed Effects[b]

Parameter	Intercept	[Priming=1]	[Priming=2]	[Morph=1]	[Morph=2]
Intercept	.000727	-.000239	0[a]	-9.820038E-5	0[a]
[Priming=1]	-.000239	.000481	0[a]	9.523715E-5	0[a]
[Priming=2]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=1]	-9.820038E-5	9.523715E-5	0[a]	.000200	0[a]
[Morph=2]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=1] * [Priming=1]	9.474322E-5	-.000337	0[a]	-.000193	0[a]
[Morph=1] * [Priming=2]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=2] * [Priming=1]	0[a]	0[a]	0[a]	0[a]	0[a]
[Morph=2] * [Priming=2]	0[a]	0[a]	0[a]	0[a]	0[a]

a. The covariance is set to zero because it is associated with a redundant parameter.

b. Dependent Variable: logrt.

Covariance Matrix for Estimates of Fixed Effects[b]

Parameter	[Morph=1] * [Priming=1]	[Morph=1] * [Priming=2]	[Morph=2] * [Priming=1]	[Morph=2] * [Priming=2]
Intercept	9.474322E-5	0[a]	0[a]	0[a]
[Priming=1]	-.000337	0[a]	0[a]	0[a]
[Priming=2]	0[a]	0[a]	0[a]	0[a]
[Morph=1]	-.000193	0[a]	0[a]	0[a]
[Morph=2]	0[a]	0[a]	0[a]	0[a]
[Morph=1] * [Priming=1]	.000687	0[a]	0[a]	0[a]
[Morph=1] * [Priming=2]	0[a]	0[a]	0[a]	0[a]
[Morph=2] * [Priming=1]	0[a]	0[a]	0[a]	0[a]
[Morph=2] * [Priming=2]	0[a]	0[a]	0[a]	0[a]

a. The covariance is set to zero because it is associated with a redundant parameter.

b. Dependent Variable: logrt.

Covariance Parameters

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.
Residual		.049424	.001617	30.566	.000
Intercept [subject = Participant]	Variance	.016532	.004215	3.923	.000
Intercept [subject = Word]	Variance	.004470	.001090	4.100	.000

a. Dependent Variable: logrt.

Estimates of Covariance Parameters[a]

Parameter		95% Confidence Interval	
		Lower Bound	Upper Bound
Residual		.046354	.052697
Intercept [subject = Participant]	Variance	.010031	.027248
Intercept [subject = Word]	Variance	.002771	.007210

a. Dependent Variable: logrt.

Covariance Matrix for Estimates of Covariance Parameters[a]

Parameter		Residual	Intercept [subject = Participant] Variance	Intercept [subject = Word] Variance
Residual		2.614512E-6	-4.097050E-8	-1.726423E-7
Intercept [subject = Participant]	Variance	-4.097050E-8	1.776352E-5	-2.410161E-10
Intercept [subject = Word]	Variance	-1.726423E-7	-2.410161E-10	1.188708E-6

a. Dependent Variable: logrt.

Descriptives

Notes

Output Created		28-Mar-2010 16:46:33
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=residual (Zresidual) /SAVE .
Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.017
Variables Created or Modified	Zresidual	Zscore: Residuals

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Residuals	2004	-1.1599	.9236	.000000	.2172632
Valid N (listwise)	2004				

Explore

Notes

Output Created		28-Mar-2010 16:46:33
Comments		
Input	Data	C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
	Active Dataset	tw
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	2004
Missing Value Handling	Definition of Missing	User-defined missing values for dependent variables are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any dependent variable or factor used.
Syntax		EXAMINE VARIABLES=residual /PLOT = histogram npplot .
Resources	Processor Time	00:00:00.875
	Elapsed Time	00:00:00.954

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Total Sample

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Residuals	2004	100.0%	0	.0%	2004	100.0%

Descriptives

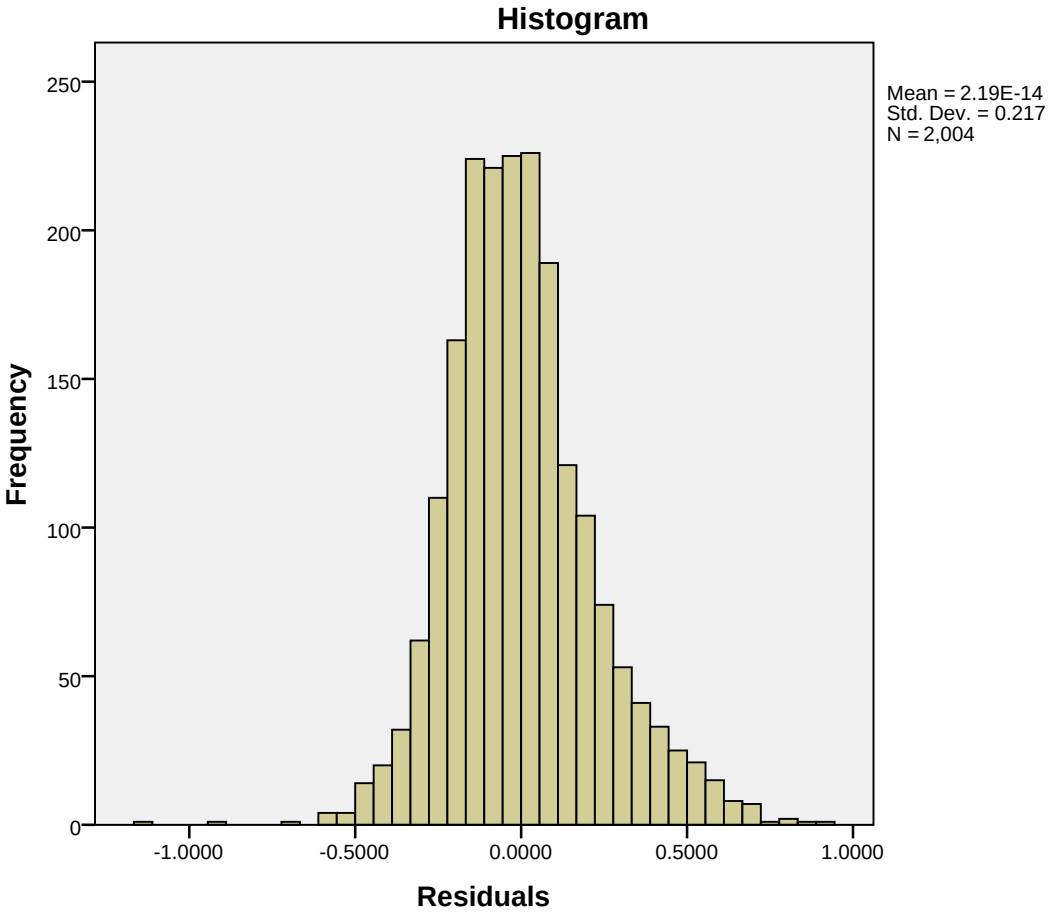
			Statistic	Std. Error
Residuals	Mean		.000000	.0048533
	95% Confidence Interval for Mean	Lower Bound	-.009518	
		Upper Bound	.009518	
	5% Trimmed Mean		-.006943	
	Median		-.019021	
	Variance		.047	
	Std. Deviation		.2172632	
	Minimum		-1.1599	
	Maximum		.9236	
	Range		2.0835	
	Interquartile Range		.2550	
	Skewness		.488	.055
	Kurtosis		1.239	.109

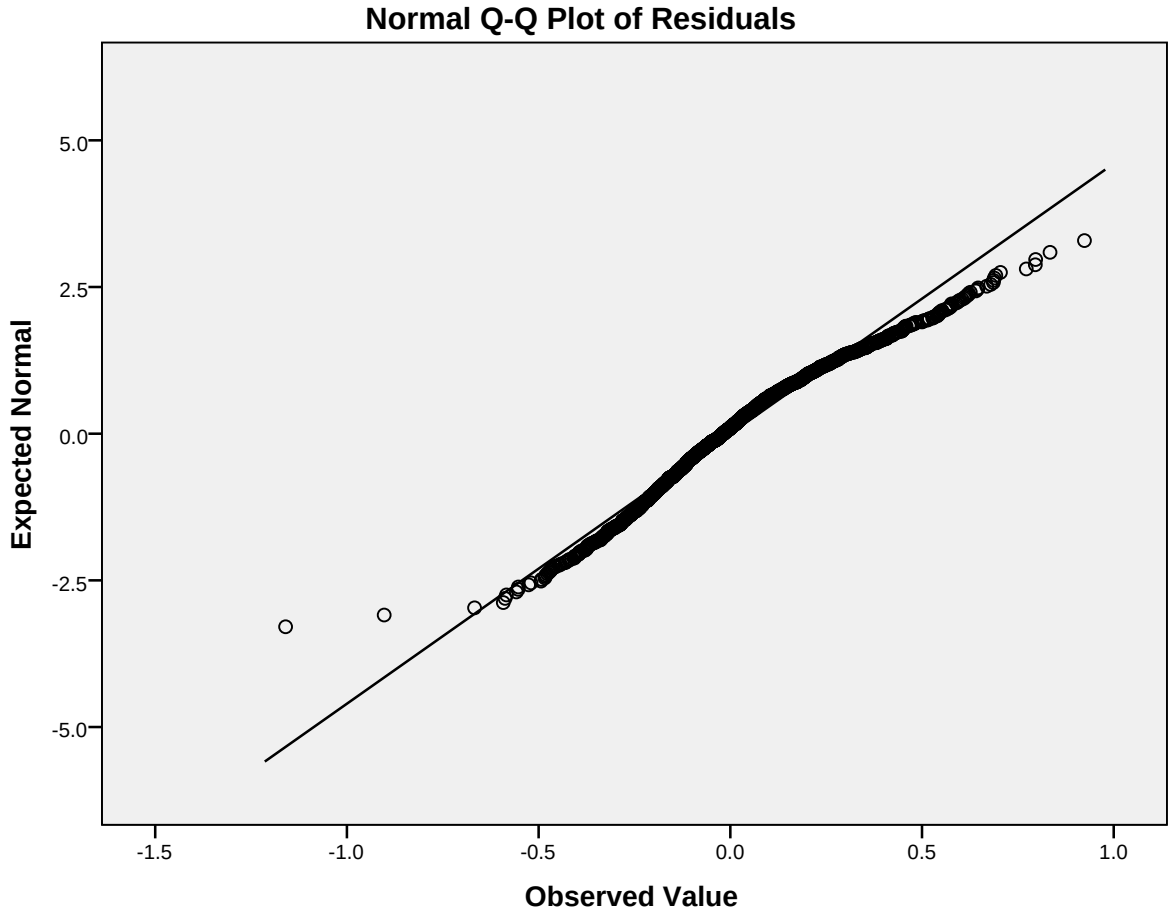
Tests of Normality

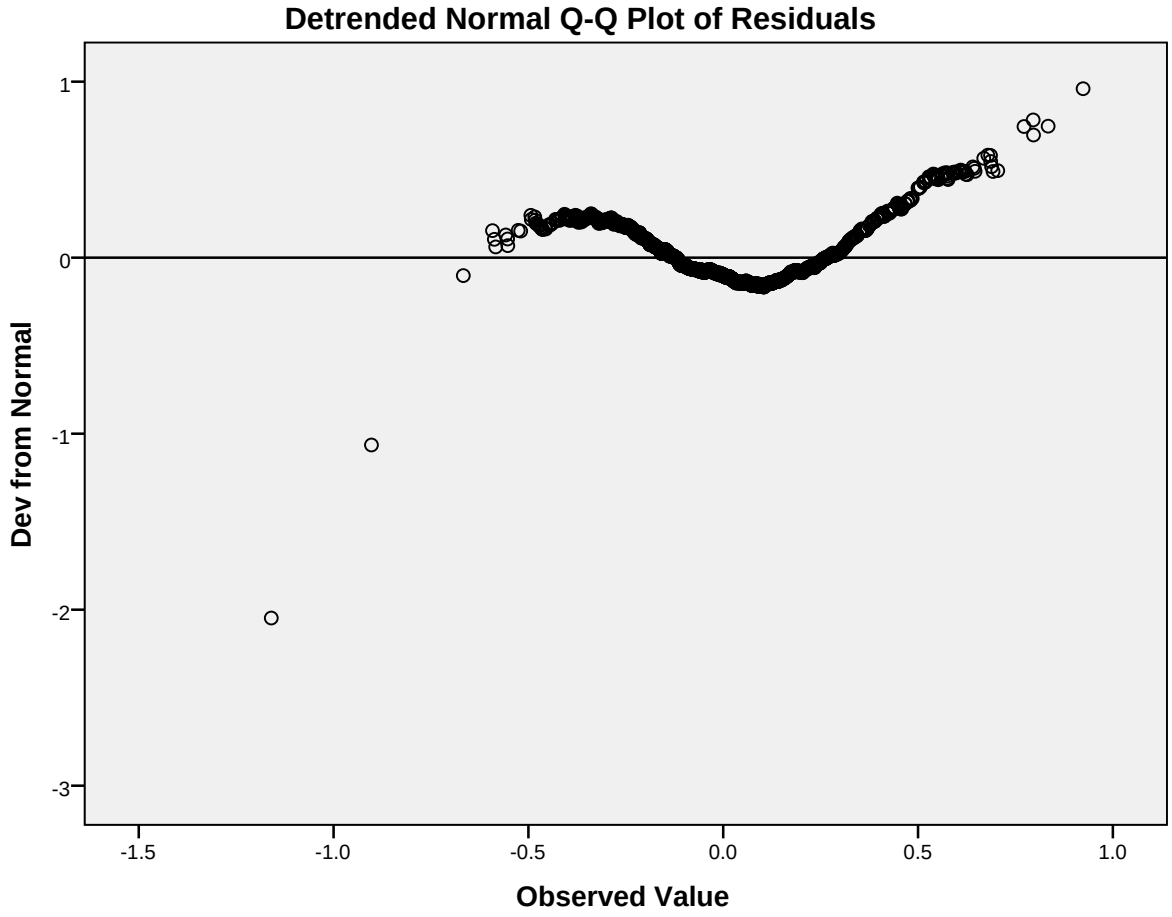
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Residuals	.058	2004	.000	.977	2004	.000

a. Lilliefors Significance Correction

Residuals

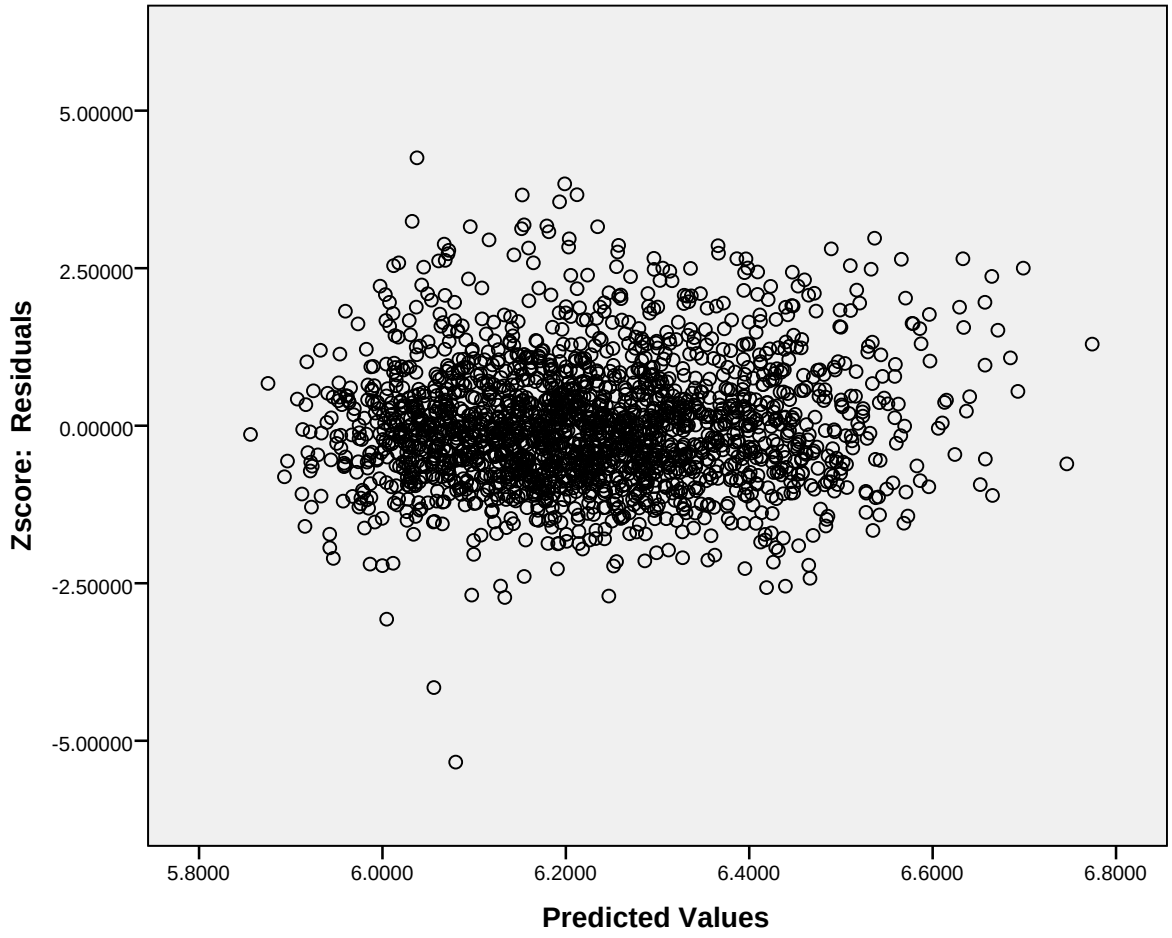

Histogram
Mean = 2.19E-14
Std. Dev. = 0.217
N = 2,004
Frequency
250
200
150
100
50
0
-1.0000
-0.5000
0.0000
0.5000
1.0000
Residuals


Normal Q-Q Plot of Residuals
Expected Normal
5.0
2.5
0.0
-2.5
-5.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
Observed Value



Graph

[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav




```
DJMIXED /COMPAREMODELS
            NAME1='log main effects' NAME2='log interaction'   .
```

DJMIXED.CompareModels

```
[tw] C:\flash2\schrijf\twicerandom\data1\tw-set1d-spss.sav
```

Compare Models[a]

	Model A	Model B	LRT	Best
Model Name	log main effects	log interaction		
-2LL	-136.006	-140.266		B
AIC	-124.006	-126.266		B
Number of Parameters	6.000	7.000		A
Chi-squared			4.260	
Df			1.000	
p-value			.039	B

a. Assumptions: Model A is nested within Model B, which makes Model B a more complex model (more parameters). Model A and Model B do not only differ in random effects, use comparerandommodels in that case. The LRT (likelihood ratio test) evaluates the improved fit of Model B against the lower number of parameters of Model A and suggests which model is best based on a Chi-Squared test (with alpha=0).