Univariate Analysis of Variance

Notes

Output Created		07-SEP-2022 11:36:28
Comments		
Input	Data	C:\Users\Student\OneDrive - University of Kent\URSS\Experiment 1 - Spell or No Spell\Statistical Analysis\Final_All_Results.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	6134198
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.

Notes

Syntax		UNIANOVA Roberta_Result BY Pre_Processed Spell_Checked /CONTRAST (Spell_Checked)=Simple (1) /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /POSTHOC=Spell_Checked(TUKEY) /PLOT=PROFILE (Spell_Checked*Pre_Processed) TYPE=LINE ERRORBAR=CI MEANREFERENCE=NO YAXIS=AUTO /EMMEANS=TABLES (Pre_Processed) /EMMEANS=TABLES (Spell_Checked) /EMMEANS=TABLES (Pre_Processed*Spell_Checked) /PRINT ETASQ DESCRIPTIVE PARAMETER /PLOT=RESIDUALS /CRITERIA=ALPHA(.05) /ROBUST=HC4 /DESIGN=Pre_Processed Spell_Checked Pre_Processed*Spell_Checked.
Resources	Processor Time	00:03:37.84
	Elapsed Time	00:03:33.03

[DataSet1] C:\Users\Student\OneDrive - University of Kent\URSS\Experiment 1 - Spell or No Spell\Statistical Analysis\Final_All_Results.sav

Between-Subjects Factors

		Value Label	N
Pre_Processed	0	False	3067099
	1	True	3067099
Spell_Checked	None		876314
	Symspell		876314
	Symspell_Compound		876314
	Symspell_Compound_Urban		876314
	Symspell_Urban		876314
	TextBlob		876314
	TextBlob_Urban		876314

Descriptive Statistics

Dependent Variable: Roberta_Result

Pre_Processed	Spell_Checked	Mean	Std. Deviation	N
False	None	.7537918460	.2249107464	438157
	Symspell	.7397033314	.2278943036	438157
	Symspell_Compound	.7410651824	.2251223290	438157
	Symspell_Compound_Urban	.7421701959	.2256372541	438157
	Symspell_Urban	.7422141240	.2283167214	438157
	TextBlob	.7216557573	.2335286355	438157
	TextBlob_Urban	.7359691694	.2337210244	438157
	Total	.7395099438	.2286463176	3067099
True	None	.7346031691	.2330289454	438157
	Symspell	.7131526613	.2373248245	438157

Descriptive Statistics

Dependent Variable: Roberta_Result

Pre_Processed	Spell_Checked	Mean	Std. Deviation	N
	Symspell_Compound	.7147458466	.2347529064	438157
	Symspell_Compound_Urban	.7157517519	.2353170889	438157
	Symspell_Urban	.7171265685	.2376513504	438157
	TextBlob	.7016309622	.2400025215	438157
	TextBlob_Urban	.7158151005	.2408056576	438157
	Total	.7161180086	.2371672365	3067099
Total	None	.7441975076	.2292065842	876314
	Symspell	.7264279964	.2330356538	876314
	Symspell_Compound	.7279055145	.2303640851	876314
	Symspell_Compound_Urban	.7289609739	.2309059863	876314
	Symspell_Urban	.7296703463	.2333680128	876314
	TextBlob	.7116433597	.2369991586	876314
	TextBlob_Urban	.7258921350	.2375035231	876314
	Total	.7278139762	.2332391587	6134198

Tests of Between-Subjects Effects

Dependent Variable: Roberta_Result

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1327.949[a]	13	102.150	1885.237	.000	.004
Intercept	3249365.553	1	3249365.553	59968945.44	.000	.907
Pre_Processed	839.132	1	839.132	15486.666	.000	.003
Spell_Checked	473.467	6	78.911	1456.351	.000	.001
Pre_Processed * Spell_Checked	15.351	6	2.559	47.219	<.001	.000
Error	332375.466	6134184	.054			
Total	3583068.969	6134198				
Corrected Total	333703.415	6134197				

a. R Squared = .004 (Adjusted R Squared = .004)

Parameter Estimates

Dependent Variable: Roberta_Result

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
Intercept	.716	.000	2035.540	.000	.715	.717	.403
[Pre_Processed=0]	.020	.000	40.525	.000	.019	.021	.000
[Pre_Processed=1]	0[a]	.	.	.	.	.	.
[Spell_Checked=None]	.019	.000	37.779	.000	.018	.020	.000
[Spell_Checked=Symspell]	-.003	.000	-5.354	<.001	-.004	-.002	.000
[Spell_Checked=Symspell_Compound]	-.001	.000	-2.150	.032	-.002	-9.452E-5	.000
[Spell_Checked=Symspell_Compound_Urban]	-6.335E-5	.000	-.127	.899	-.001	.001	.000
[Spell_Checked=Symspell_Urban]	.001	.000	2.637	.008	.000	.002	.000

Parameter Estimates

Dependent Variable: Roberta_Result

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
[Spell_Checked=TextBlob]	-.014	.000	-28.521	<.001	-.015	-.013	.000
[Spell_Checked=TextBlob_Urban]	0^a	.	.	.	.	.	.
[Pre_Processed=0] * [Spell_Checked=None]	-.001	.001	-1.373	.170	-.002	.000	.000
[Pre_Processed=0] * [Spell_Checked=Symspell]	.006	.001	9.095	<.001	.005	.008	.000
[Pre_Processed=0] * [Spell_Checked=Symspell_Compound]	.006	.001	8.766	<.001	.005	.008	.000
[Pre_Processed=0] * [Spell_Checked=Symspell_Compound_Urban]	.006	.001	8.907	<.001	.005	.008	.000
[Pre_Processed=0] * [Spell_Checked=Symspell_Urban]	.005	.001	7.015	<.001	.004	.006	.000
[Pre_Processed=0] * [Spell_Checked=TextBlob]	.000	.001	-.184	.854	-.002	.001	.000
[Pre_Processed=0] * [Spell_Checked=TextBlob_Urban]	0^a	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=None]	0^a	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=Symspell]	0^a	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=Symspell_Compound]	0^a	.	.	.	.	.	.

Parameter Estimates

Dependent Variable: Roberta_Result

| Parameter | B | Std. Error | t | Sig. | 95% Confidence Interval | | Partial Eta Squared |
					Lower Bound	Upper Bound	
[Pre_Processed=1] * [Spell_Checked=Symspell_ Compound_Urban]	0[a]	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=Symspell_ Urban]	0[a]	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=TextBlob]	0[a]	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=TextBlob_ Urban]	0[a]	.	.	.	.	.	.

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

Custom Hypothesis Tests

Contrast Results (K Matrix)

Spell_Checked Simple Contrast[a]			Dependent Variable Roberta_Result
Level 2 vs. Level 1	Contrast Estimate		-.018
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.018
	Std. Error		.000
	Sig.		.000
	95% Confidence Interval for Difference	Lower Bound	-.018
		Upper Bound	-.017
Level 3 vs. Level 1	Contrast Estimate		-.016
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.016
	Std. Error		.000
	Sig.		.000
	95% Confidence Interval for Difference	Lower Bound	-.017
		Upper Bound	-.016
Level 4 vs. Level 1	Contrast Estimate		-.015
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.015
	Std. Error		.000
	Sig.		.000
	95% Confidence Interval for Difference	Lower Bound	-.016
		Upper Bound	-.015
Level 5 vs. Level 1	Contrast Estimate		-.015
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.015
	Std. Error		.000
	Sig.		.000
	95% Confidence Interval for Difference	Lower Bound	-.015
		Upper Bound	-.014

Contrast Results (K Matrix)

Spell_Checked Simple Contrast[a]		Dependent Variable Roberta_Result
Level 6 vs. Level 1	Contrast Estimate	-.033
	Hypothesized Value	0
	Difference (Estimate - Hypothesized)	-.033
	Std. Error	.000
	Sig.	.000
	95% Confidence Interval for Difference Lower Bound	-.033
	Upper Bound	-.032
Level 7 vs. Level 1	Contrast Estimate	-.018
	Hypothesized Value	0
	Difference (Estimate - Hypothesized)	-.018
	Std. Error	.000
	Sig.	.000
	95% Confidence Interval for Difference Lower Bound	-.019
	Upper Bound	-.018

a. Reference category = 1

Test Results

Dependent Variable: Roberta_Result

Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	473.467	6	78.911	1456.351	.000	.001
Error	332375.466	6134184	.054			

Estimated Marginal Means

1. Pre_Processed

Dependent Variable: Roberta_Result

Pre_Processed	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
False	.740	.000	.739	.740
True	.716	.000	.716	.716

2. Spell_Checked

Dependent Variable: Roberta_Result

Spell_Checked	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
None	.744	.000	.744	.745
Symspell	.726	.000	.726	.727
Symspell_Compound	.728	.000	.727	.728
Symspell_Compound_Urban	.729	.000	.728	.729
Symspell_Urban	.730	.000	.729	.730
TextBlob	.712	.000	.711	.712
TextBlob_Urban	.726	.000	.725	.726

3. Pre_Processed * Spell_Checked

Dependent Variable: Roberta_Result

Pre_Processed	Spell_Checked	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
False	None	.754	.000	.753	.754
	Symspell	.740	.000	.739	.740
	Symspell_Compound	.741	.000	.740	.742
	Symspell_Compound_Urban	.742	.000	.741	.743
	Symspell_Urban	.742	.000	.742	.743
	TextBlob	.722	.000	.721	.722
	TextBlob_Urban	.736	.000	.735	.737
True	None	.735	.000	.734	.735
	Symspell	.713	.000	.712	.714
	Symspell_Compound	.715	.000	.714	.715
	Symspell_Compound_Urban	.716	.000	.715	.716
	Symspell_Urban	.717	.000	.716	.718
	TextBlob	.702	.000	.701	.702
	TextBlob_Urban	.716	.000	.715	.717

Post Hoc Tests

Spell_Checked

Multiple Comparisons

Dependent Variable: Roberta_Result

Tukey HSD

(I) Spell_Checked	(J) Spell_Checked	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
None	Symspell	.017769511[*]	.0003516586	.000	.0167327089	.0188063135
	Symspell_Compound	.016291993[*]	.0003516586	.000	.0152551907	.0173287954
	Symspell_Compound_Urban	.015236534[*]	.0003516586	.000	.0141997313	.0162733360
	Symspell_Urban	.014527161[*]	.0003516586	.000	.0134903590	.0155639636
	TextBlob	.032554148[*]	.0003516586	.000	.0315173455	.0335909501
	TextBlob_Urban	.018305373[*]	.0003516586	.000	.0172685703	.0193421749
Symspell	None	-.017769511[*]	.0003516586	.000	-.018806314	-.016732709
	Symspell_Compound	-.001477518[*]	.0003516586	<.001	-.002514320	-.000440716
	Symspell_Compound_Urban	-.002532978[*]	.0003516586	.000	-.003569780	-.001496175
	Symspell_Urban	-.003242350[*]	.0003516586	.000	-.004279152	-.002205548
	TextBlob	.014784637[*]	.0003516586	.000	.0137478343	.0158214389
	TextBlob_Urban	.0005358614	.0003516586	.731	-.000500941	.0015726637
Symspell_Compound	None	-.016291993[*]	.0003516586	.000	-.017328795	-.015255191
	Symspell	.001477518[*]	.0003516586	<.001	.0004407158	.0025143205
	Symspell_Compound_Urban	-.001055459[*]	.0003516586	.043	-.002092262	-.000018657
	Symspell_Urban	-.001764832[*]	.0003516586	<.001	-.002801634	-.000728029
	TextBlob	.016262155[*]	.0003516586	.000	.0152253524	.0172989571
	TextBlob_Urban	.002013380[*]	.0003516586	<.001	.0009765772	.0030501819
Symspell_Compound_Urban	None	-.015236534[*]	.0003516586	.000	-.016273336	-.014199731
	Symspell	.002532978[*]	.0003516586	.000	.0014961752	.0035697799

Multiple Comparisons

Dependent Variable: Roberta_Result

Tukey HSD

(I) Spell_Checked	(J) Spell_Checked	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	Symspell_Compound	.001055459*	.0003516586	.043	.0000186571	.0020922618
	Symspell_Urban	-.000709372	.0003516586	.404	-.001746175	.0003274300
	TextBlob	.017317614*	.0003516586	.000	.0162808118	.0183544165
	TextBlob_Urban	.003068839*	.0003516586	.000	.0020320366	.0041056413
Symspell_Urban	None	-.014527161*	.0003516586	.000	-.015563964	-.013490359
	Symspell	.003242350*	.0003516586	.000	.0022055476	.0042791522
	Symspell_Compound	.001764832*	.0003516586	<.001	.0007280295	.0028016341
	Symspell_Compound_Urban	.0007093723	.0003516586	.404	-.000327430	.0017461747
	TextBlob	.018026987*	.0003516586	.000	.0169901842	.0190637889
	TextBlob_Urban	.003778211*	.0003516586	.000	.0027414090	.0048150136
TextBlob	None	-.032554148*	.0003516586	.000	-.033590950	-.031517345
	Symspell	-.014784637*	.0003516586	.000	-.015821439	-.013747834
	Symspell_Compound	-.016262155*	.0003516586	.000	-.017298957	-.015225352
	Symspell_Compound_Urban	-.017317614*	.0003516586	.000	-.018354417	-.016280812
	Symspell_Urban	-.018026987*	.0003516586	.000	-.019063789	-.016990184
	TextBlob_Urban	-.014248775*	.0003516586	.000	-.015285578	-.013211973
TextBlob_Urban	None	-.018305373*	.0003516586	.000	-.019342175	-.017268570
	Symspell	-.000535861	.0003516586	.731	-.001572664	.0005009409
	Symspell_Compound	-.002013380*	.0003516586	<.001	-.003050182	-.000976577
	Symspell_Compound_Urban	-.003068839*	.0003516586	.000	-.004105641	-.002032037
	Symspell_Urban	-.003778211*	.0003516586	.000	-.004815014	-.002741409
	TextBlob	.014248775*	.0003516586	.000	.0132119729	.0152855775

Based on observed means.
 The error term is Mean Square(Error) = .054.

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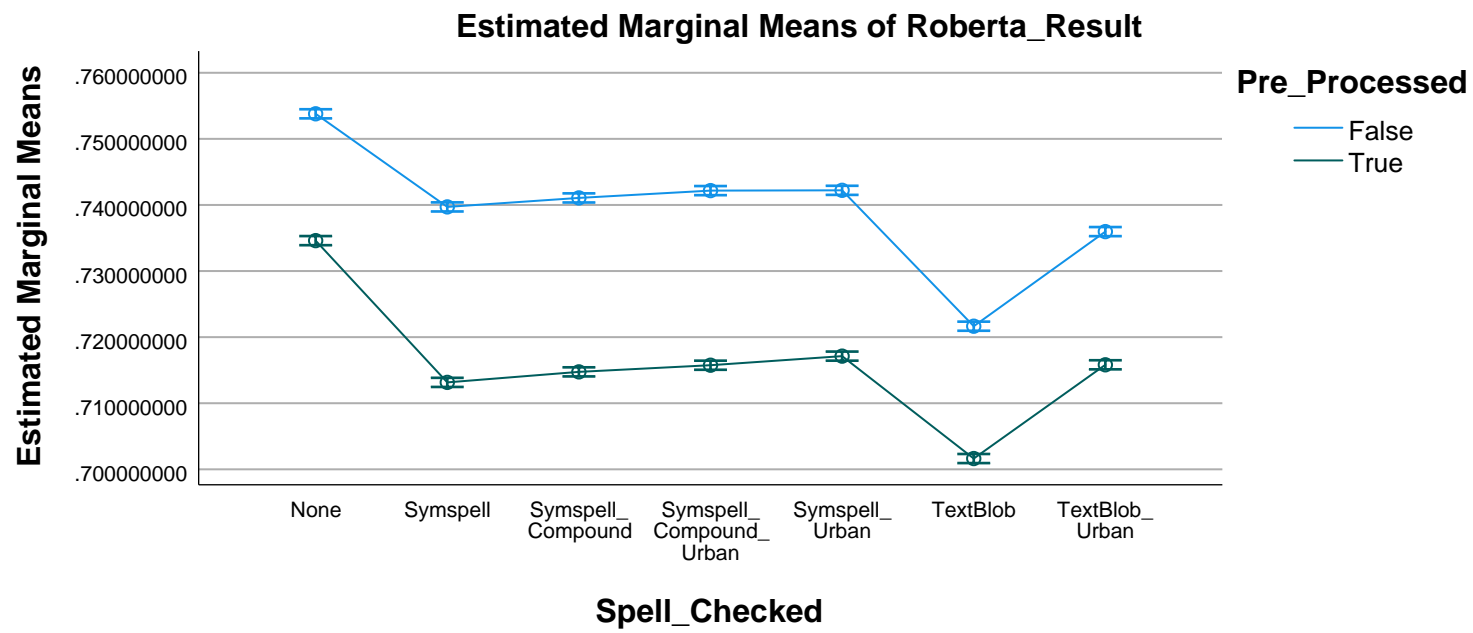

Homogeneous Subsets

Roberta_Result

Tukey HSD[a,b]

Spell_Checked	N	Subset				
		1	2	3	4	5
TextBlob	876314	.7116433597				
TextBlob_Urban	876314		.7258921350			
Symspell	876314		.7264279964			
Symspell_Compound	876314			.7279055145		
Symspell_Compound_Urban	876314				.7289609739	
Symspell_Urban	876314				.7296703463	
None	876314					.7441975076
Sig.		1.000	.731	1.000	.404	1.000

Means for groups in homogeneous subsets are displayed.
 Based on observed means.
 The error term is Mean Square(Error) = .054.

   a. Uses Harmonic Mean Sample Size = 876314.000.

   b. Alpha = .05.

The requested chart cannot be drawn because the application has run out of memory.

Profile Plots

Estimated Marginal Means of Roberta_Result

Error bars: 95% CI

Parameter Estimates with Robust Standard Errors

Dependent Variable: Roberta_Result

Parameter	B	Robust Std. Error[a]	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
Intercept	.716	.000	1967.655	.000	.715	.717	.387
[Pre_Processed=0]	.020	.001	39.754	.000	.019	.021	.000
[Pre_Processed=1]	0[b]	.	.	.	.	.	.
[Spell_Checked=None]	.019	.001	37.113	<.001	.018	.020	.000
[Spell_Checked=Symspell]	-.003	.001	-5.213	<.001	-.004	-.002	.000
[Spell_Checked=Symspell_Compound]	-.001	.001	-2.105	.035	-.002	-7.349E-5	.000
[Spell_Checked=Symspell_Compound_Urban]	-6.335E-5	.001	-.125	.901	-.001	.001	.000
[Spell_Checked=Symspell_Urban]	.001	.001	2.566	.010	.000	.002	.000
[Spell_Checked=TextBlob]	-.014	.001	-27.616	<.001	-.015	-.013	.000
[Spell_Checked=TextBlob_Urban]	0[b]	.	.	.	.	.	.
[Pre_Processed=0] * [Spell_Checked=None]	-.001	.001	-1.370	.171	-.002	.000	.000
[Pre_Processed=0] * [Spell_Checked=Symspell]	.006	.001	9.009	<.001	.005	.008	.000
[Pre_Processed=0] * [Spell_Checked=Symspell_Compound]	.006	.001	8.732	<.001	.005	.008	.000
[Pre_Processed=0] * [Spell_Checked=Symspell_Compound_Urban]	.006	.001	8.863	<.001	.005	.008	.000
[Pre_Processed=0] * [Spell_Checked=Symspell_Urban]	.005	.001	6.943	<.001	.004	.006	.000

Parameter Estimates with Robust Standard Errors

Dependent Variable: Roberta_Result

Parameter	B	Robust Std. Error[a]	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
[Pre_Processed=0] * [Spell_Checked=TextBlob]	.000	.001	-.180	.857	-.002	.001	.000
[Pre_Processed=0] * [Spell_Checked=TextBlob_Urban]	0[b]	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=None]	0[b]	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=Symspell]	0[b]	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=Symspell_Compound]	0[b]	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=Symspell_Compound_Urban]	0[b]	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=Symspell_Urban]	0[b]	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=TextBlob]	0[b]	.	.	.	.	.	.
[Pre_Processed=1] * [Spell_Checked=TextBlob_Urban]	0[b]	.	.	.	.	.	.

a. HC4 method

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