

Results

ANCOVA

ANCOVA - ...

	Sum of Squares	df	Mean Square	F	p
...
Residuals

[3]

Assumption Checks

Homogeneity of Variances Test (Levene's)

F	df1	df2	p
.	.	.	.

[3]

Normality Test (Shapiro-Wilk)

Statistic	p
.	.

ANOVA

ANOVA - spelling vacuum

	Sum of Squares	df	Mean Square	F	p
Spelling grammar vacuum	102	1	102.12	29.3	< .001
Residuals	220	63	3.49		

[3]

Assumption Checks

Homogeneity of Variances Test (Levene's)

F	df1	df2	p
4.36	1	63	0.041

[3]

Normality Test (Shapiro-Wilk)

Statistic	p
0.924	< .001

Descriptives

Descriptives

	Spelling grammar vacuum	valuable vacuum	purchase vacuum
N	1 no spelling error	30	30
	2 spelling error	34	35
Missing	1 no spelling error	0	0
	2 spelling error	3	2
Mean	1 no spelling error	5.40	5.20
	2 spelling error	4.06	4.46
Median	1 no spelling error	5.50	5.00
	2 spelling error	4.00	4
Standard deviation	1 no spelling error	1.30	1.58
	2 spelling error	2.07	2.12
Minimum	1 no spelling error	3	1
	2 spelling error	1	1
Maximum	1 no spelling error	7	7
	2 spelling error	7	7

ANOVA

ANOVA - ...

	Sum of Squares	df	Mean Square	F	p
...
Residuals

[3]

Descriptives

Descriptives

	Gender	funny rating Book
N	Male	24
	Female	40
	Prefer to describe in another way	1
Missing	Male	1
	Female	1
	Prefer to describe in another way	0
Mean	Male	4.54
	Female	2.90
	Prefer to describe in another way	4.00
Median	Male	5.00
	Female	2.50
	Prefer to describe in another way	4
Standard deviation	Male	2.06
	Female	1.77
	Prefer to describe in another way	NaN
Minimum	Male	1
	Female	1
	Prefer to describe in another way	4
Maximum	Male	7
	Female	7
	Prefer to describe in another way	4

Descriptives

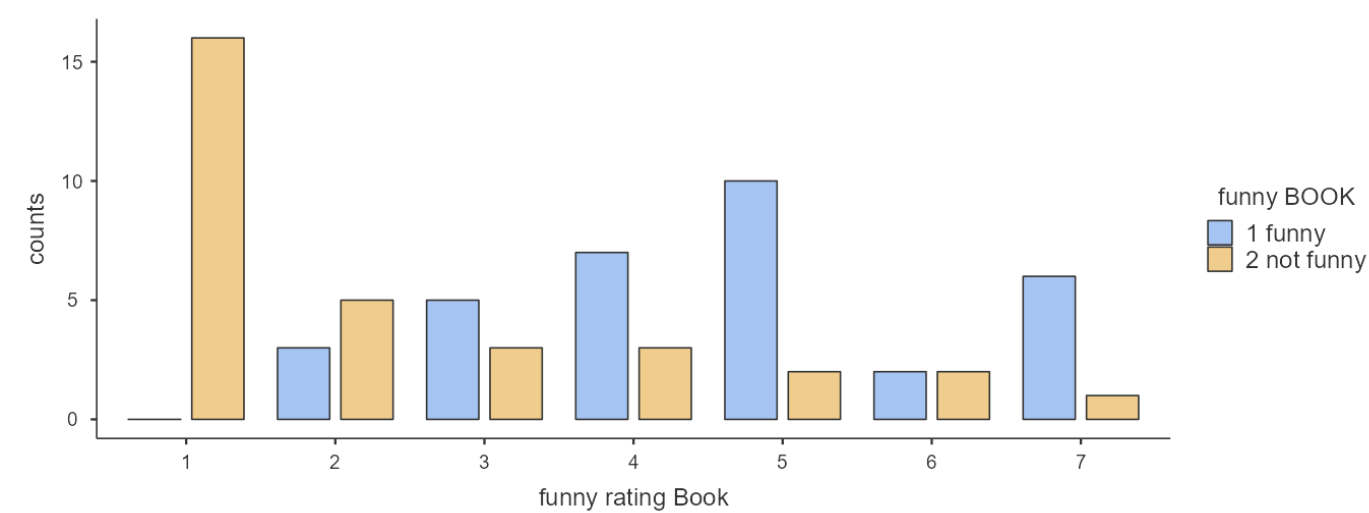
Descriptives

	funny BOOK	funny rating Book	valuable book	Purchase book
N	1 funny	33	33	33
	2 not funny	32	32	32
Missing	1 funny	1	1	1
	2 not funny	1	1	1
Mean	1 funny	4.64	4.97	4.48
	2 not funny	2.38	4.00	3.50
Std. error mean	1 funny	0.268	0.341	0.399
	2 not funny	0.320	0.238	0.318
Median	1 funny	5	5	5
	2 not funny	1.50	4.00	4.00
Mode	1 funny	5.00	7.00	7.00
	2 not funny	1.00	4.00 ^a	2.00
Sum	1 funny	153	164	148
	2 not funny	76	128	112
Standard deviation	1 funny	1.54	1.96	2.29
	2 not funny	1.81	1.34	1.80
Minimum	1 funny	2	1	1
	2 not funny	1	2	1
Maximum	1 funny	7	7	7
	2 not funny	7	7	7

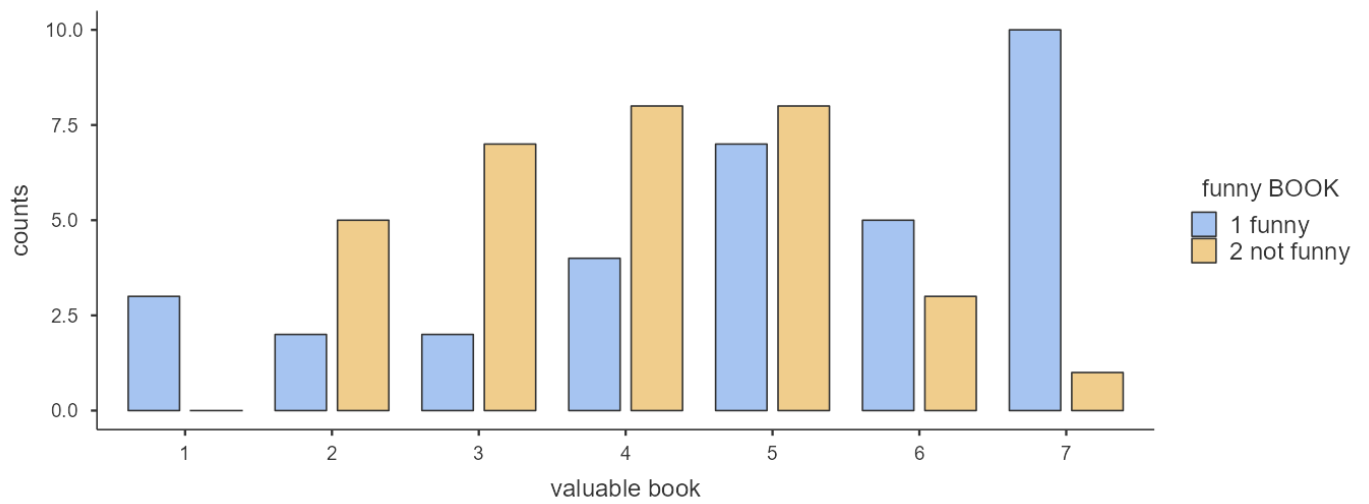
^a More than one mode exists, only the first is reported

Plots

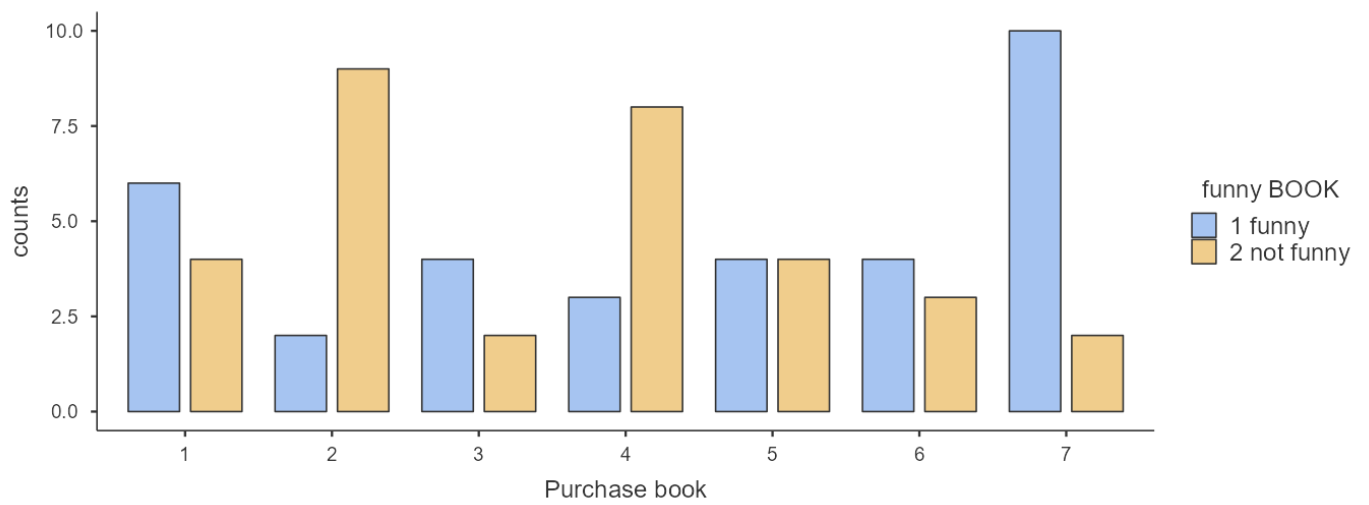
funny rating Book



valuable book



Purchase book



ANOVA

ANOVA - funny rating Book

	Sum of Squares	df	Mean Square	F	p
funny BOOK	83.1	1	83.08	29.5	< .001
Residuals	177.1	63	2.81		

[3]

Assumption Checks

Homogeneity of Variances Test (Levene's)

F	df1	df2	p
1.14	1	63	0.289

[3]

Normality Test (Shapiro-Wilk)

Statistic	p
0.923	< .001

One-Way ANOVA (Non-parametric)

Kruskal-Wallis

	χ^2	df	p
spelling vacuum	19.89	1	< .001
valuable vacuum	6.87	1	0.009
purchase vacuum	2.24	1	0.135

Repeated Measures ANOVA (Non-parametric)

Friedman

χ^2	df	p
.	.	.

Pairwise Comparisons (Durbin-Conover)

Statistic	p

[4]

Descriptives

Mean	Median

Descriptive Plot

ANOVA

ANOVA - ...

	Sum of Squares	df	Mean Square	F	p
...
Residuals

[3]

ANOVA

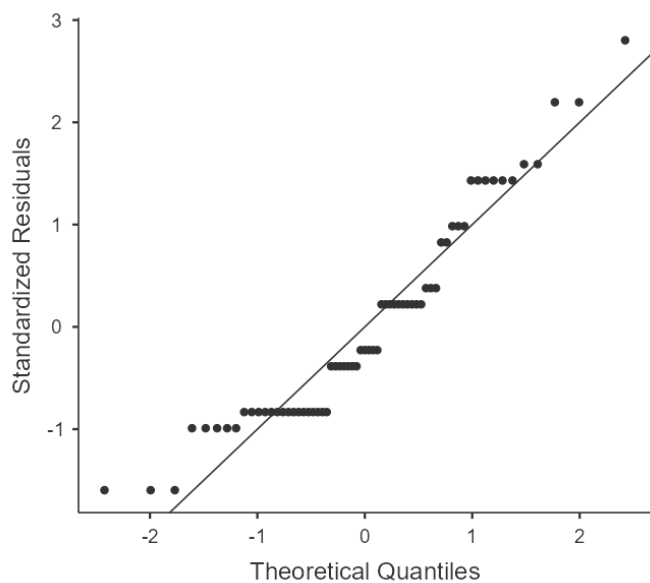
ANOVA - funny rating Book

	Sum of Squares	df	Mean Square	F	p
funny BOOK	83.1	1	83.08	29.5	< .001
Residuals	177.1	63	2.81		

[3]

Assumption Checks

Q-Q Plot



Repeated Measures ANOVA (Non-parametric)

Friedman

χ^2	df	p
13.1	1	< .001

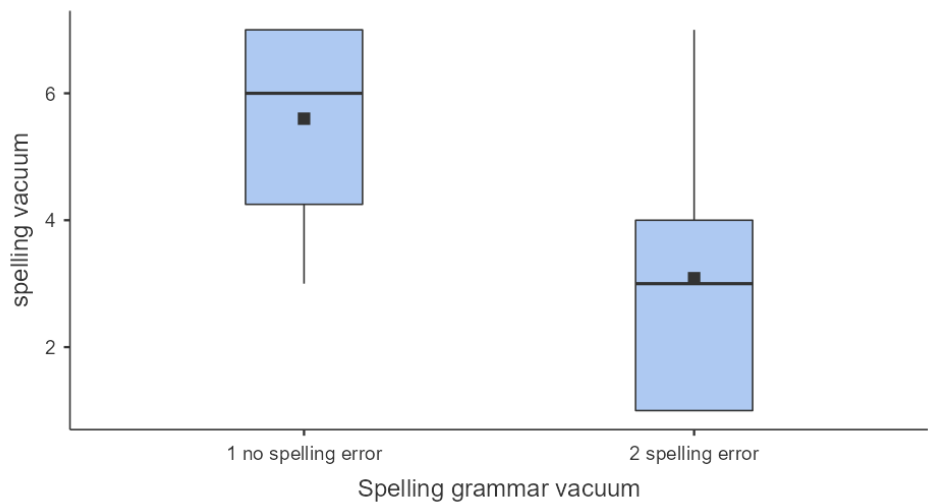
Descriptives

Descriptives

	Spelling grammar vacuum	spelling vacuum
N	1 no spelling error	30
	2 spelling error	35
Missing	1 no spelling error	0
	2 spelling error	2
Mean	1 no spelling error	5.60
	2 spelling error	3.09
Median	1 no spelling error	6.00
	2 spelling error	3
Sum	1 no spelling error	168
	2 spelling error	108
Standard deviation	1 no spelling error	1.54
	2 spelling error	2.11
Minimum	1 no spelling error	3
	2 spelling error	1
Maximum	1 no spelling error	7
	2 spelling error	7

Plots

spelling vacuum



Descriptives

Descriptives					
	Spelling grammar vacuum	Gender describe the other way	spelling vacuum	valuable vacuum	purchase vacuum
N	1 no spelling error	Queer	1	1	1
	2 spelling error		0	0	0
Missing	1 no spelling error		0	0	0
	2 spelling error		0	0	0
Mean	1 no spelling error		7.00	4.00	4.00
	2 spelling error		NaN	NaN	NaN
Std. error mean	1 no spelling error		NaN	NaN	NaN
	2 spelling error		NaN	NaN	NaN
Median	1 no spelling error		7	4	4
	2 spelling error		NaN	NaN	NaN
Sum	1 no spelling error		7	4	4
	2 spelling error		NaN	NaN	NaN
Standard deviation	1 no spelling error		NaN	NaN	NaN
	2 spelling error		NaN	NaN	NaN
Minimum	1 no spelling error		7	4	4
	2 spelling error		NaN	NaN	NaN
Maximum	1 no spelling error		7	4	4
	2 spelling error		NaN	NaN	NaN

One-Way ANOVA (Non-parametric)

Kruskal-Wallis		
χ^2	df	p

Independent Samples T-Test

Independent Samples T-Test		
Statistic	df	p

One-Way ANOVA (Non-parametric)

Kruskal-Wallis

	χ^2	df	p
funny rating Book	21.43	1	< .001
valuable book	6.30	1	0.012
Purchase book	3.36	1	0.067

Independent Samples T-Test

Independent Samples T-Test

		Statistic	df	p
funny rating Book	Student's t	5.44	63.0	< .001

Note. H_a: μ 1 funny \neq μ 2 not funny

ANOVA

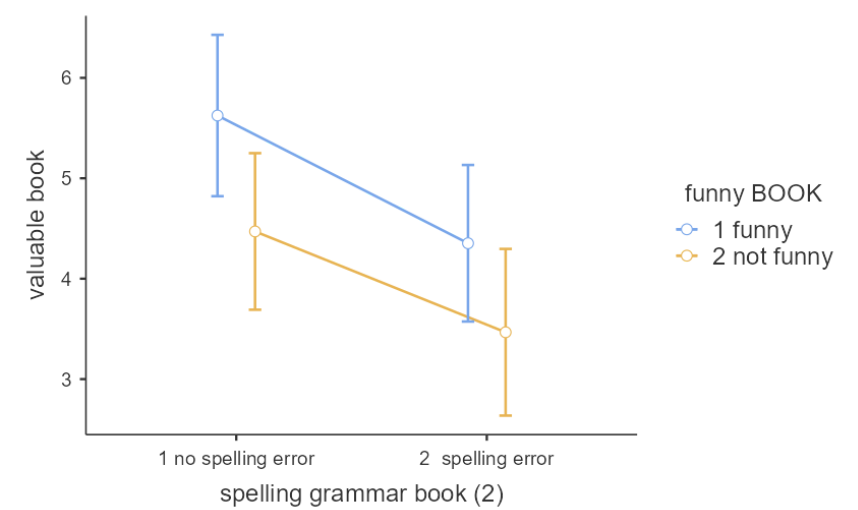
ANOVA - valuable book

	Sum of Squares	df	Mean Square	F	p
funny BOOK	16.873	1	16.873	6.531	0.013
spelling grammar book (2)	20.988	1	20.988	8.123	0.006
funny BOOK * spelling grammar book (2)	0.291	1	0.291	0.113	0.738
Residuals	157.601	61	2.584		

[3]

Estimated Marginal Means

spelling grammar book (2) * funny BOOK



[5]

One-Way ANOVA

One-Way ANOVA (Welch's)

F	df1	df2	p
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Independent Samples T-Test

Independent Samples T-Test

		Statistic	df	p
funny rating vacuum	Student's t	3.52	63.0	< .001
	Mann-Whitney U	277		< .001

Note. H_a μ 1 funny \neq μ 2 not funny

Group Descriptives

	Group	N	Mean	Median	SD	SE
funny rating vacuum	1 funny	31	4.35	5.00	1.76	0.316
	2 not funny	34	2.65	2.00	2.12	0.363

Independent Samples T-Test

Independent Samples T-Test

		Statistic	df	p
spelling vacuum	Student's t	5.41 ^a	63.0	< .001

Note. H_a μ 1 no spelling error \neq μ 2 spelling error

^a Levene's test is significant (p < .05), suggesting a violation of the assumption of equal variances

Group Descriptives

	Group	N	Mean	Median	SD	SE
spelling vacuum	1 no spelling error	30	5.60	6.00	1.54	0.282
	2 spelling error	35	3.09	3.00	2.11	0.356

ANOVA

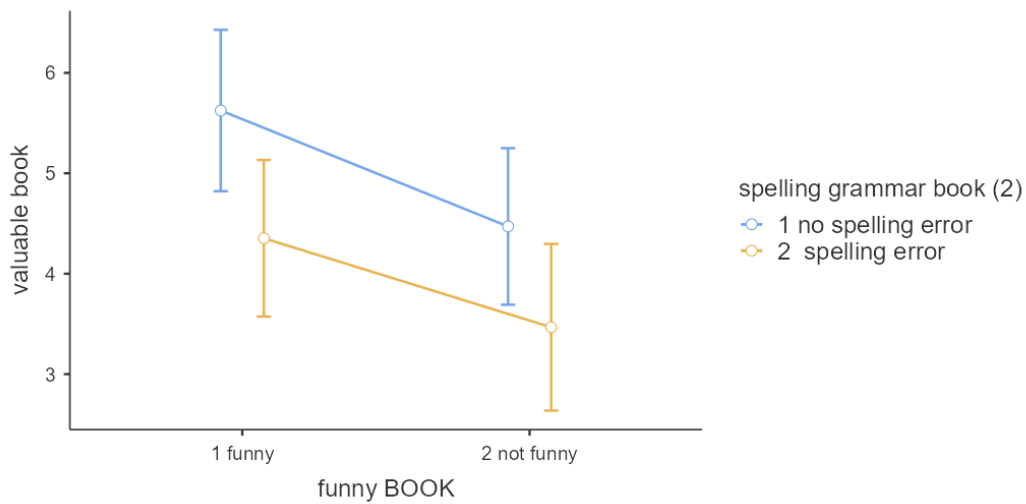
ANOVA - valuable book

	Sum of Squares	df	Mean Square	F	p
funny BOOK	16.873	1	16.873	6.531	0.013
spelling grammar book (2)	20.988	1	20.988	8.123	0.006
funny BOOK * spelling grammar book (2)	0.291	1	0.291	0.113	0.738
Residuals	157.601	61	2.584		

[3]

Estimated Marginal Means

funny BOOK * spelling grammar book (2)



Estimated Marginal Means - funny BOOK * spelling grammar book (2)

spelling grammar book (2)	funny BOOK	Mean	SE	95% Confidence Interval	
				Lower	Upper
1 no spelling error	1 funny	5.63	0.402	4.82	6.43
	2 not funny	4.47	0.390	3.69	5.25
2 spelling error	1 funny	4.35	0.390	3.57	5.13
	2 not funny	3.47	0.415	2.64	4.30

[5]

ANOVA

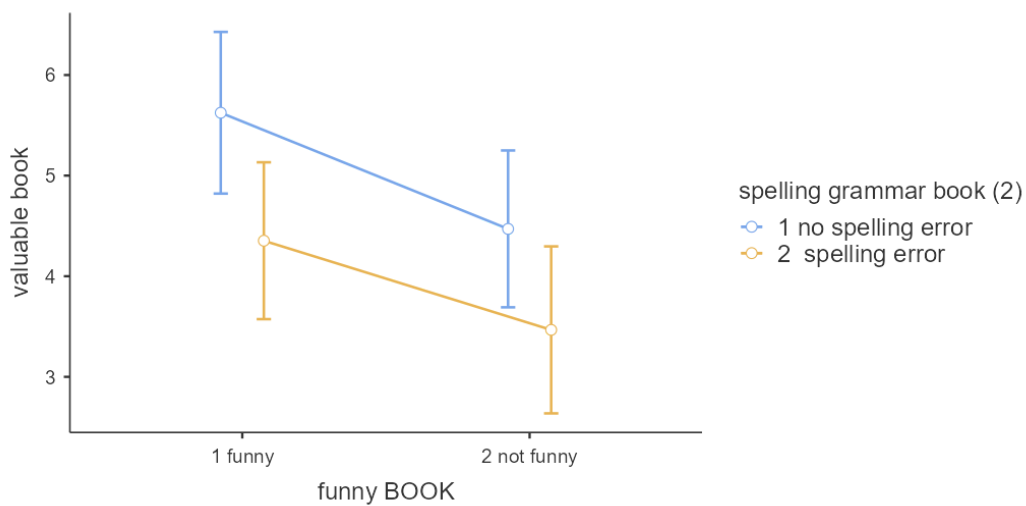
ANOVA - valuable book

	Sum of Squares	df	Mean Square	F	p
funny BOOK	16.873	1	16.873	6.531	0.013
spelling grammar book (2)	20.988	1	20.988	8.123	0.006
funny BOOK * spelling grammar book (2)	0.291	1	0.291	0.113	0.738
Residuals	157.601	61	2.584		

[3]

Estimated Marginal Means

funny BOOK * spelling grammar book (2)



Estimated Marginal Means - funny BOOK * spelling grammar book (2)

spelling grammar book (2)	funny BOOK	Mean	SE	95% Confidence Interval	
				Lower	Upper
1 no spelling error	1 funny	5.63	0.402	4.82	6.43
	2 not funny	4.47	0.390	3.69	5.25
2 spelling error	1 funny	4.35	0.390	3.57	5.13
	2 not funny	3.47	0.415	2.64	4.30

[5]

ANOVA

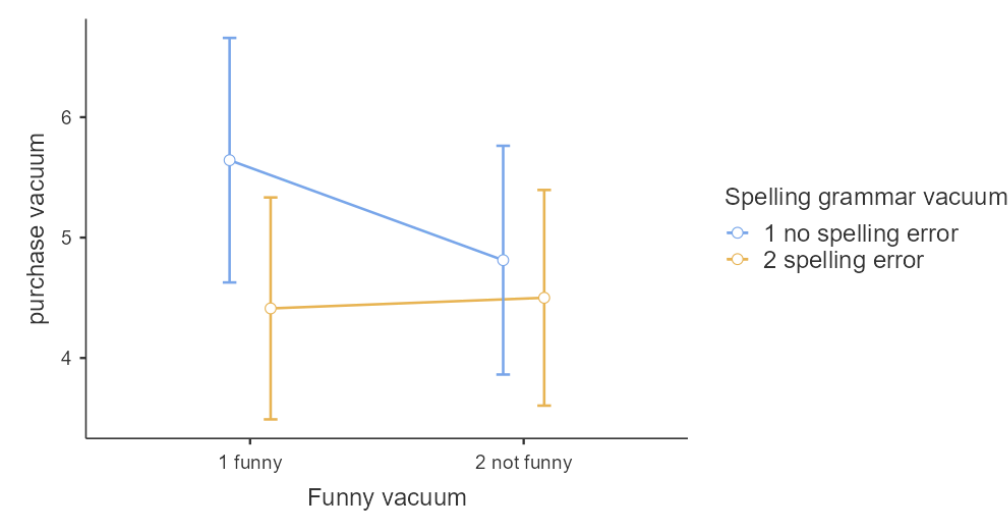
ANOVA - purchase vacuum

	Sum of Squares	df	Mean Square	F	p
Funny vacuum	2.22	1	2.22	0.614	0.436
Spelling grammar vacuum	9.60	1	9.60	2.657	0.108
Funny vacuum * Spelling grammar vacuum	3.40	1	3.40	0.941	0.336
Residuals	220.27	61	3.61		

[3]

Estimated Marginal Means

Funny vacuum * Spelling grammar vacuum



[5]

ANOVA

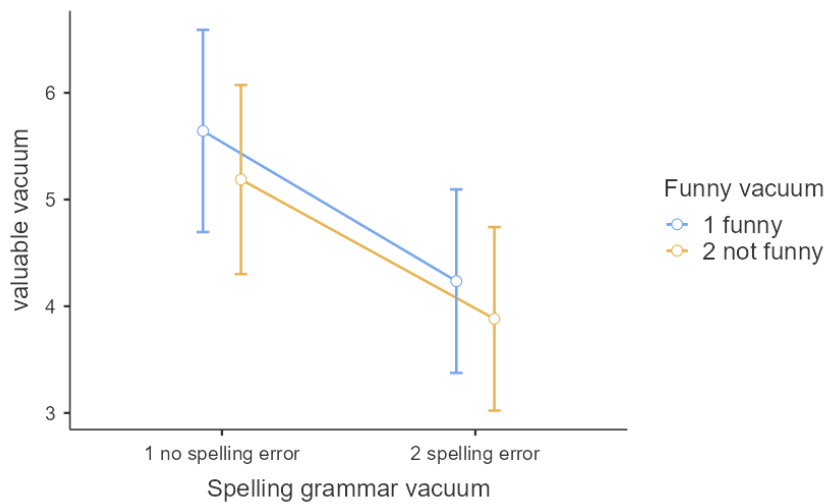
ANOVA - valuable vacuum

	Sum of Squares	df	Mean Square	F	p
Spelling grammar vacuum	29.2508	1	29.2508	9.3118	0.003
Funny vacuum	2.5970	1	2.5970	0.8267	0.367
Spelling grammar vacuum * Funny vacuum	0.0417	1	0.0417	0.0133	0.909
Residuals	188.4753	60	3.1413		

[3]

Estimated Marginal Means

Spelling grammar vacuum * Funny vacuum



[5]

ANOVA

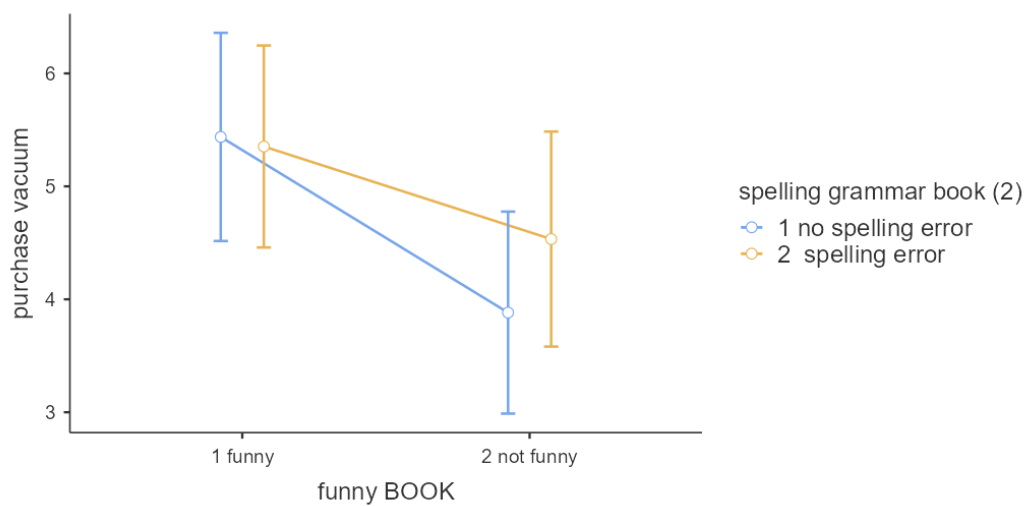
ANOVA - purchase vacuum

	Sum of Squares	df	Mean Square	F	p
funny BOOK	22.85	1	22.85	6.723	0.012
spelling grammar book (2)	1.30	1	1.30	0.382	0.539
funny BOOK * spelling grammar book (2)	2.19	1	2.19	0.645	0.425
Residuals	207.32	61	3.40		

[3]

Estimated Marginal Means

funny BOOK * spelling grammar book (2)



[5]

Descriptives

Descriptives

	Gender	Age
N	Male	24
	Female	40
	Prefer to describe in another way	1
Missing	Male	1
	Female	1
	Prefer to describe in another way	0
Mean	Male	27.5
	Female	28.1
	Prefer to describe in another way	23.0
Median	Male	25.5
	Female	24.0
	Prefer to describe in another way	23
Standard deviation	Male	6.64
	Female	9.48
	Prefer to describe in another way	NaN
Minimum	Male	20
	Female	18
	Prefer to describe in another way	23
Maximum	Male	52
	Female	61
	Prefer to describe in another way	23

References

- [1] The jamovi project (2022). *jamovi*. (Version 2.3) [Computer Software]. Retrieved from <https://www.jamovi.org>.
- [2] R Core Team (2021). *R: A Language and environment for statistical computing*. (Version 4.1) [Computer software]. Retrieved from <https://cran.r-project.org>. (R packages retrieved from MRAN snapshot 2022-01-01).
- [3] Fox, J., & Weisberg, S. (2020). *car: Companion to Applied Regression*. [R package]. Retrieved from <https://cran.r-project.org/package=car>.
- [4] Pohlert, T. (2018). *PMCMR: Calculate Pairwise Multiple Comparisons of Mean Rank Sums*. [R package]. Retrieved from <https://cran.r-project.org/package=PMCMR>.
- [5] Lenth, R. (2020). *emmeans: Estimated Marginal Means, aka Least-Squares Means*. [R package]. Retrieved from <https://cran.r-project.org/package=emmeans>.