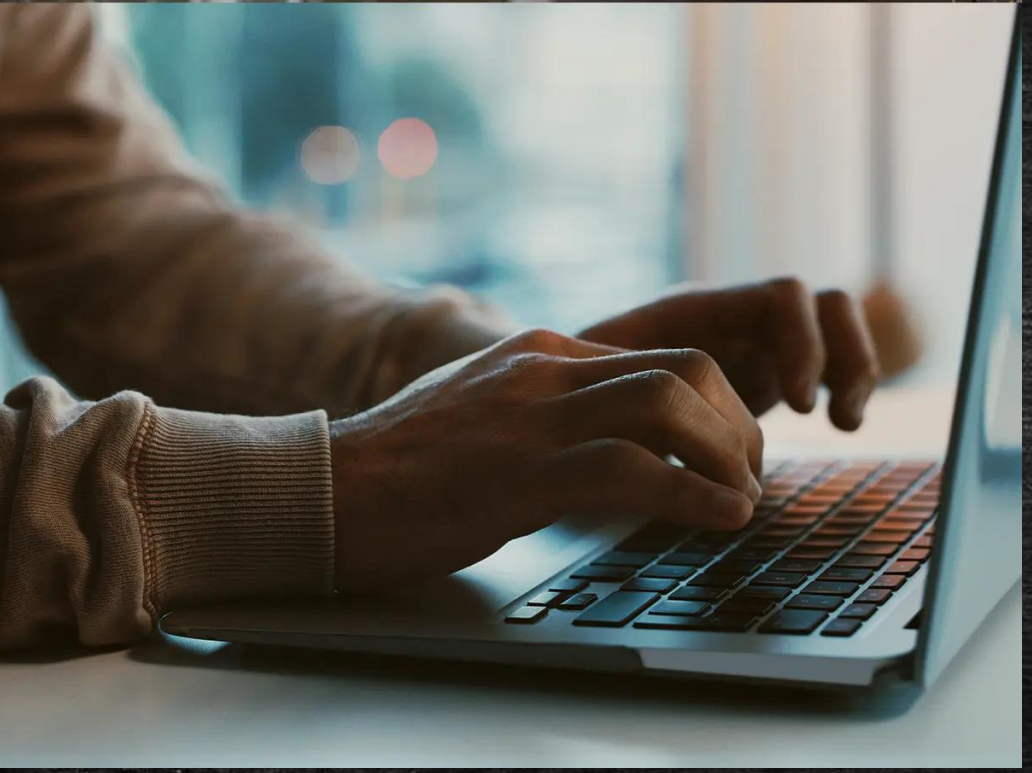

Typing Speed Experiment

By: Joe Coyne

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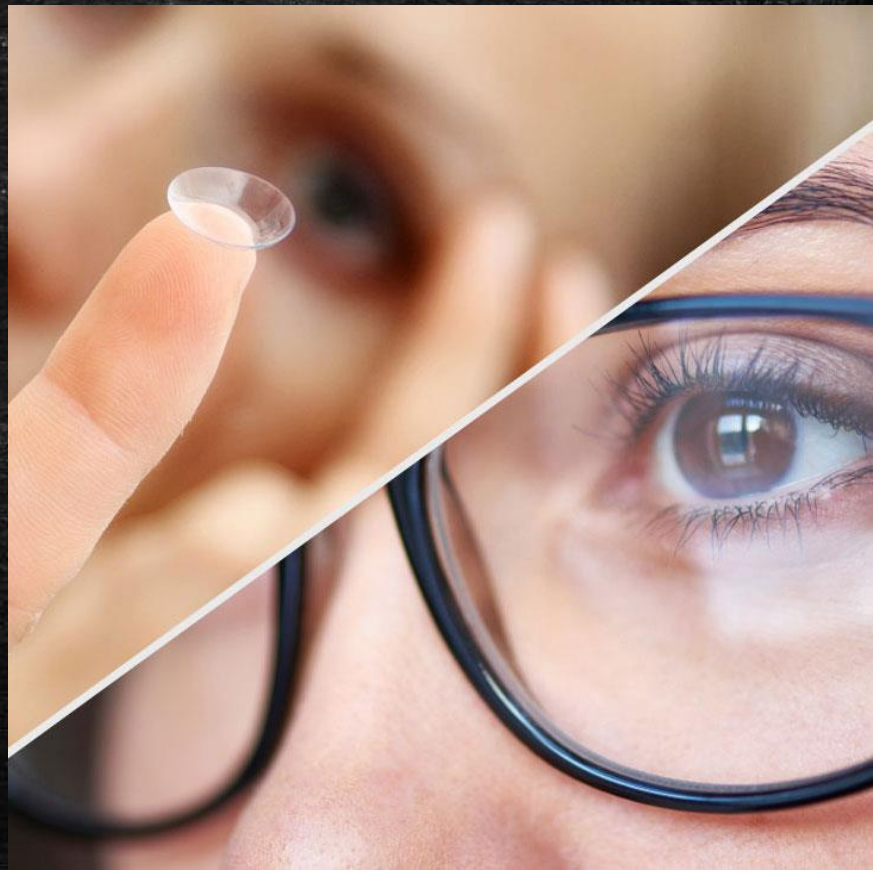
Introduction

- I have worn glasses and contacts since I was 13
- Research has differing views and opinions on if music helps a person focus or distracts them
- Do I work better in the morning or in the afternoon/evening?
- Experiment: Testing how fast I can type one page of text on typing.com based on the above three factors

Initial Hypotheses

- Contacts will have a slightly smaller time to type
- Music will have a larger time to type
- I will type faster (thus have a smaller time to type) in the afternoon/evening
- Potential interaction between eye lens and time of day



Design of the Experiment

Data Overview:

- Eyes – type of eye lens worn (+ denotes contact lens, - denotes glasses)
- Music – whether or not I am listening to music (+ denotes no music, - denotes music)
- Day – whether I tested my typing in the morning or afternoon/evening (+ denotes afternoon/evening, - denotes morning)
- Time – how long it took me to type one page (as labeled by typing.com); recorded in seconds

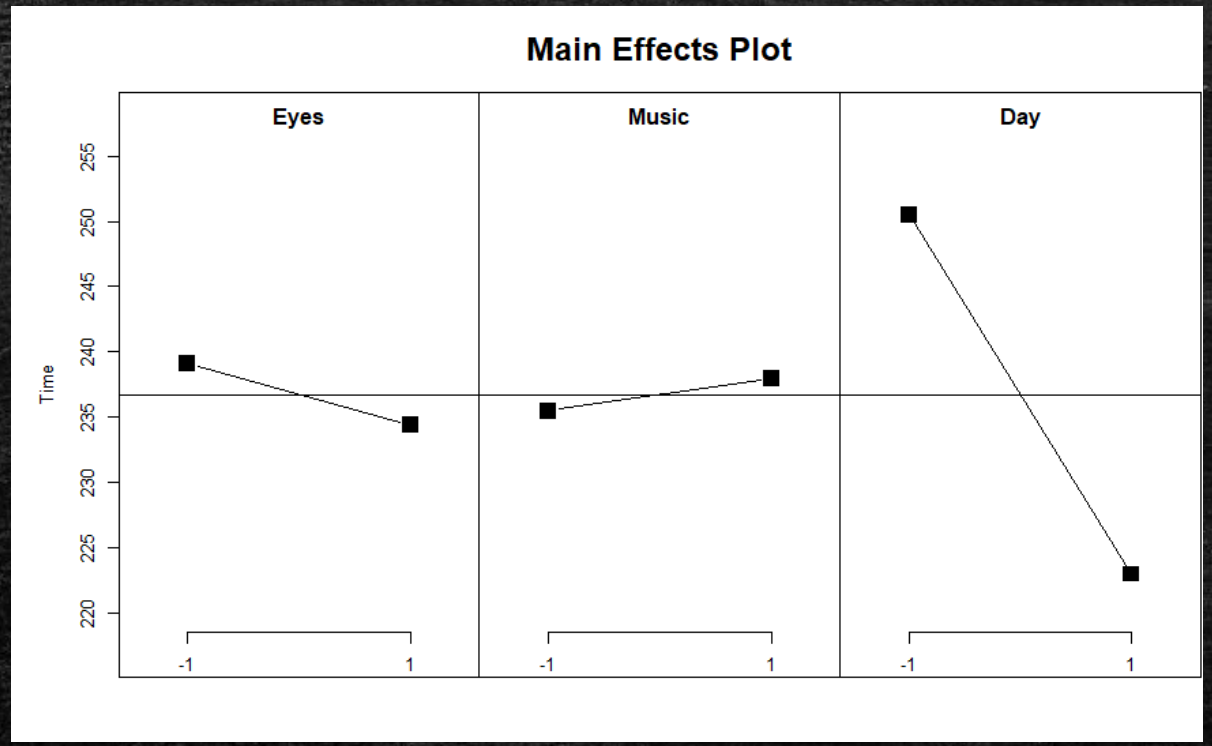
Design of the Experiment

- 16 total observations/runs (2 per Eyes, Music, Day combination)
- Contact lens and glasses have the same prescription
- Music choice was average volume pop music with lyrics
- Day recordings were taken over the course of two days between 8am-10am for the morning and between 4pm-6pm for the afternoon/evening

Data Overview

Contacts, No Music, Morning	Contacts, No Music, Afternoon	Contacts, Music, Morning	Contacts, Music, Afternoon	Glasses, No Music, Morning	Glasses, No Music, Afternoon	Glasses, Music, Morning	Glasses, Music, Afternoon
Run 1:	Run 1:	Run 1:	Run 1:	Run 1:	Run 1:	Run 1:	Run 1:
(8:30 AM)	(4:15 PM)	(8:45 AM)	(5:00 PM)	(9:15 AM)	(5:30 PM)	(8:15 AM)	(4:20 PM)
254 sec	**218 sec**	**264 sec**	**275 sec**	**275 sec**	**214 sec**	**241 sec**	**239 sec**
Run 2:	Run 2:	Run 2:	Run 2:	Run 2:	Run 2:	Run 2:	Run 2:
(8:45 AM)	(4:35 PM)	(9:00 AM)	(5:15 PM)	(9:30 AM)	(5:45 PM)	(8:30 AM)	(4:40 PM)
241 sec	**215 sec**	**236 sec**	**216 sec**	**254 sec**	**233 sec**	**239 sec**	**218 sec**
Avg: **247.5 sec**	Avg: **216.5 sec**	Avg: **250 sec**	Avg: **223.5 sec**	Avg: **264.5 sec**	Avg: **223.5 sec**	Avg: **240 sec**	Avg: **228.5 sec**

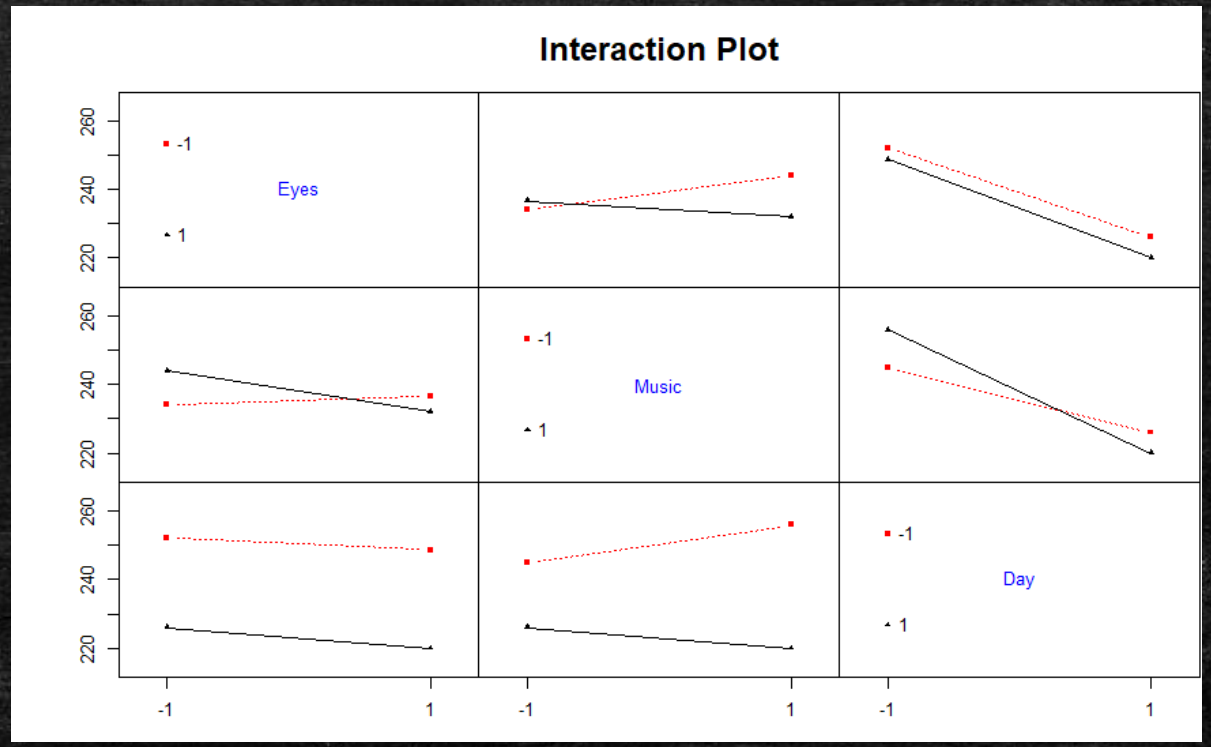
Experiment Analysis: Main Effect Plot



- Day has the largest change from Morning to Afternoon/Evening
- Music has the smallest change from Music to No Music

Interaction Plots

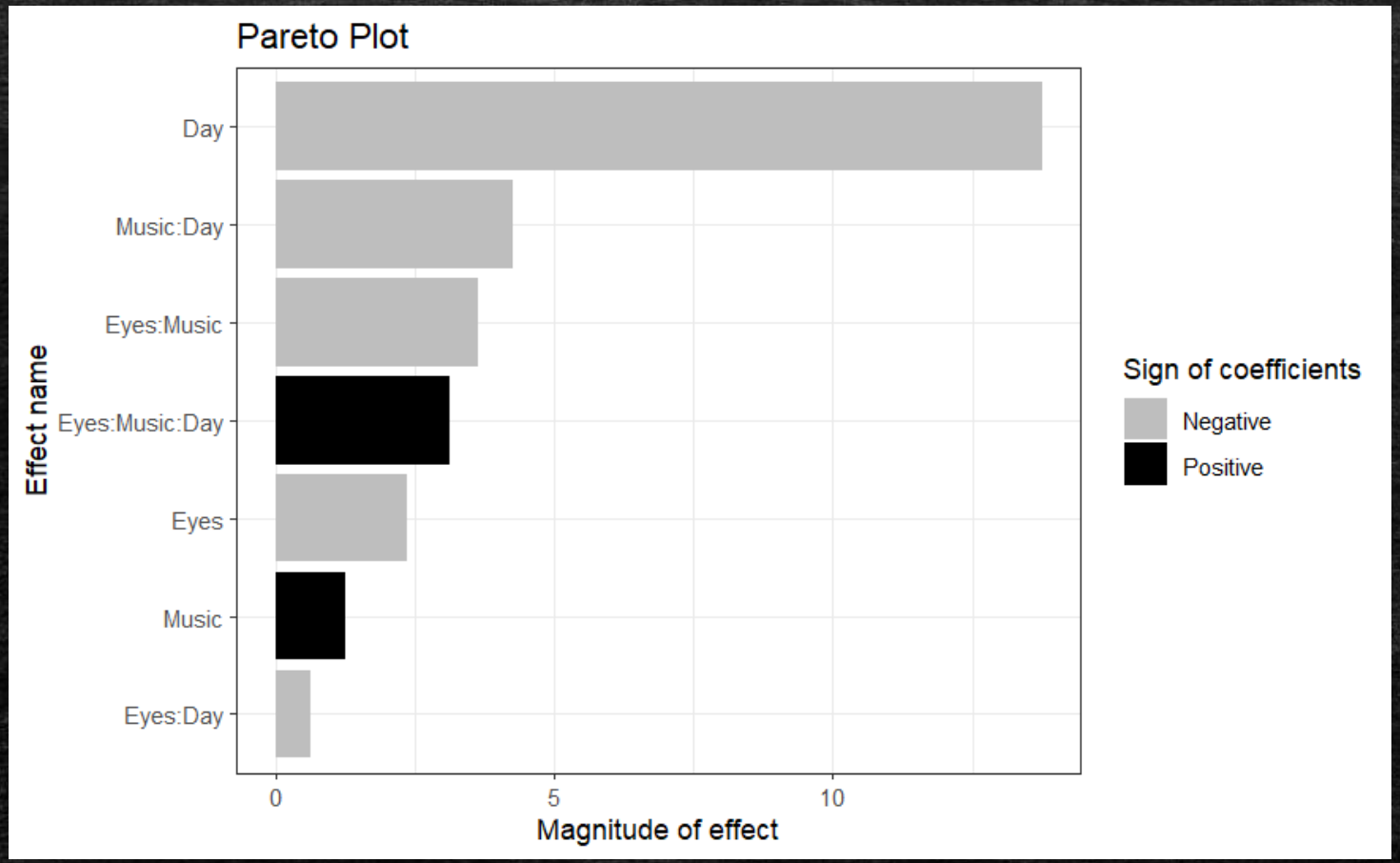
- Disorderly Interaction between Eyes and Music, Music and Days
- No Interaction between Eyes and Day



Full Model ANOVA

Source	df	Sum of Squares	Mean Square	F Value	P-value
Eyes	1	90.3	90.3	0.593	0.46330
Music	1	25.0	25.0	0.164	0.69582
Day	1	3025.0	3025.0	19.885	0.00211 **
Eyes:Music	1	210.3	210.3	1.382	0.27354
Eyes:Day	1	6.2	6.2	0.041	0.84443
Music:Day	1	289.0	289.0	1.900	0.20542
Eyes:Music:Day	1	156.3	156.3	1.027	0.34050
Residuals	8	1217.0	152.1		

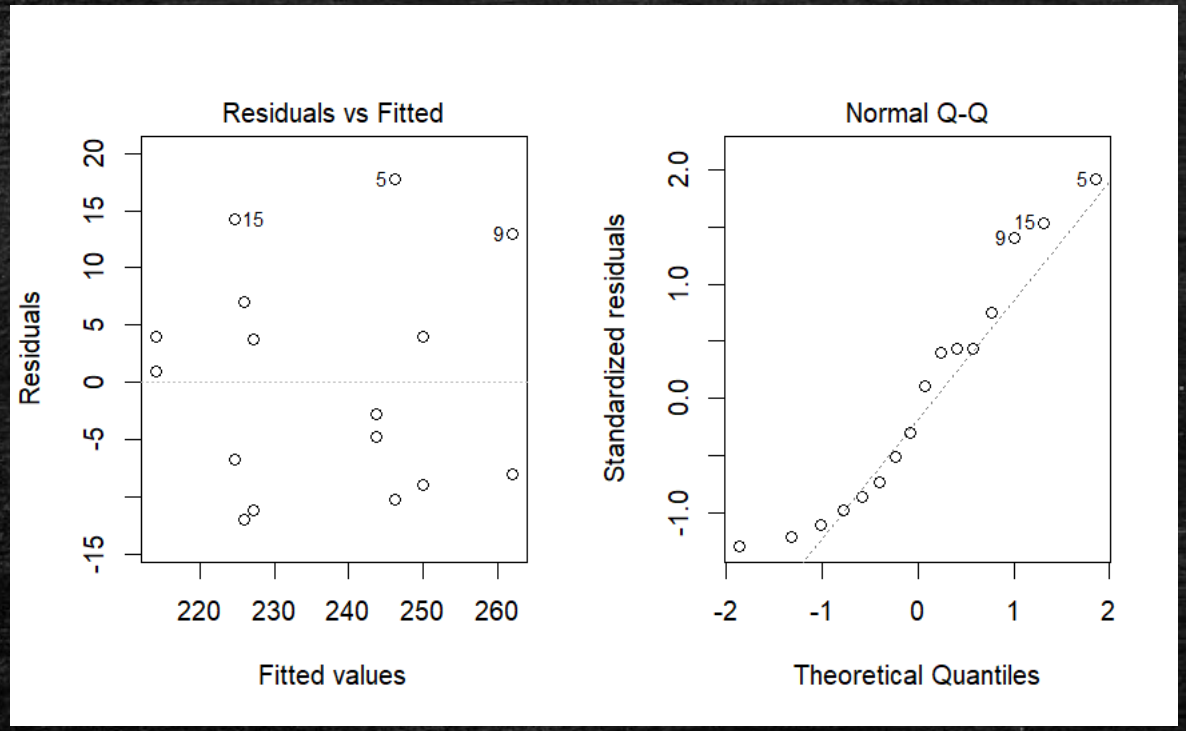
Pareto Plot


Pareto Plot
Day
Music:Day
Eyes:Music
Eyes:Music:Day
Eyes
Music
Eyes:Day
Effect name
0
5
10
Magnitude of effect
Sign of coefficients
Negative
Positive

Final Model ANOVA

Source	df	Sum of Squares	Mean Square	F Value	P-value
Eyes	1	90.3	333.1	2.166	0.16909
Music	1	25.0	25.0	0.181	0.679339
Day	1	3025.0	3025.0	21.928	0.000864 **
Eyes:Music	1	210.3	210.3	1.524	0.245223
Music:Day	1	289.0	289.0	2.095	0.178398
Residuals	10	1379.5	137.9		

Final Model



- Breusch-Pagan Test:
  - p-value = 0.5216
- Shapiro-Wilks Test:
  - p-value = 0.2309

Main Effects Model ANOVA

Source	df	Sum of Squares	Mean Square	F Value	P-value
Eyes	1	90.3	90.3	0.576	0.462363
Music	1	25.0	25.0	0.160	0.696472
Day	1	3025.0	3025.0	19.321	0.000872 ***
Residuals	12	1878.8	156.6		

Limitations and Further Considerations

- Possible error of allergies
- Different runs may have had more difficult words to type, thus increasing typing time
- Try different volumes, genres of music

Conclusion

- Optimal Solution: Contacts, Music, Afternoon/Evening
- No real difference between glasses and contacts – makes sense since both have the same prescription
  - Maybe test for long distance reading (since I am nearsighted)
- I type faster/more efficiently in the afternoon/evening than in the morning when I am more tired

Thank You!

Any questions?