

# FROM UGLY TO FUNKY

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How I learned R just to make my graphs look good

Anne Koopman  
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**Anne Koopman**

@AnneLikesSleep



Someone told me the graphs in my draft chapter were ugly. So I learned R\* and made all the graphs with ggplot just to spite this person, and if that doesn't summarize me...

\*By "learned R", I mean I copied pieces of code from around the internet. [#rstats](#) [#phdlife](#)

2:46 PM · Oct 3, 2019 · [Twitter Web App](#)

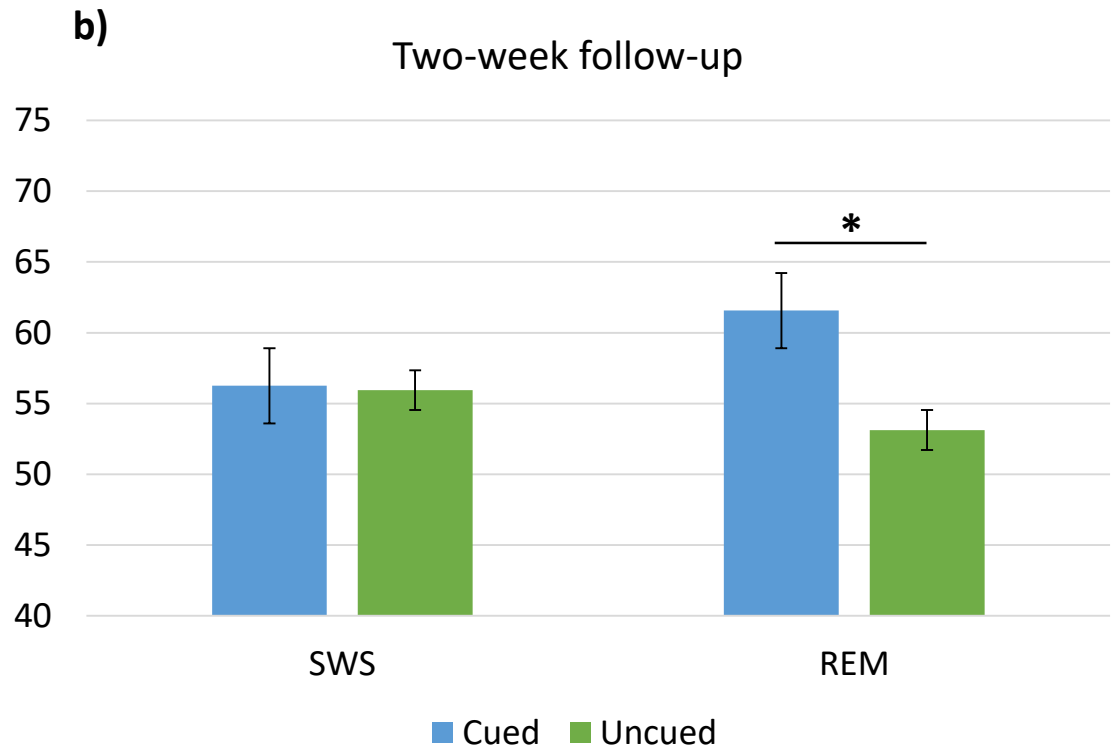
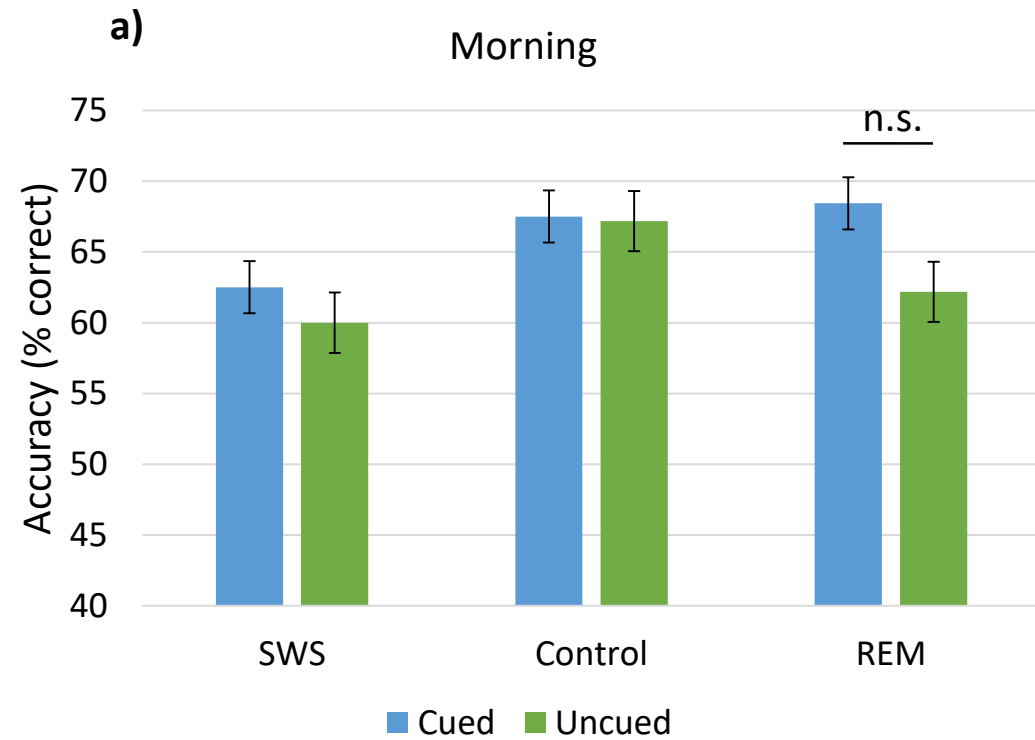
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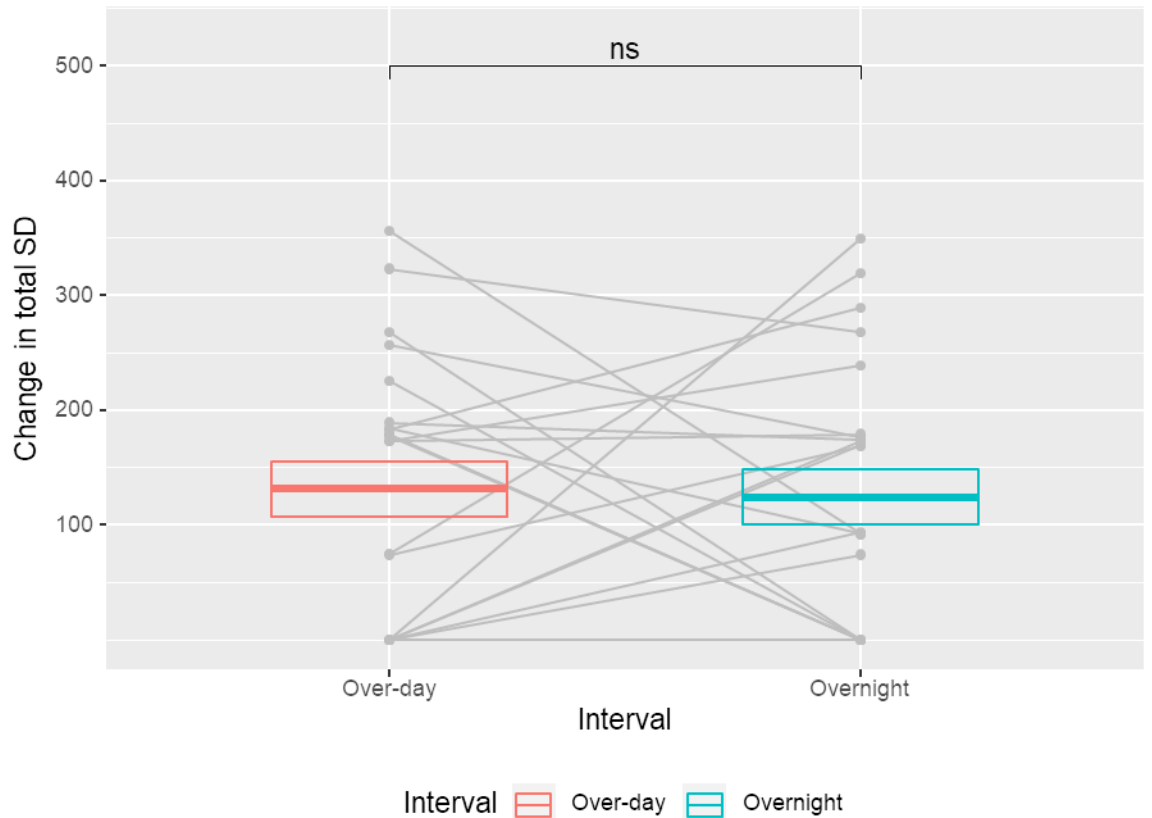
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# Before








# What do I have? Where do I start?

- Data
- An example R script from a colleague:
- Some programming experience (Python, Matlab, a beginners' R course I did 2 years ago and subsequently forgot everything from).
- The internet!



# The Data

## Before

	 Group	 R1_R_correct	 R1_R_RT	 R1_NR_correct	 R1_NR_RT
1	1	33	3973.15	32	3757.38
2	1	39	5713.23	39	5718.38
3	1	34	4058.09	35	3874.17
4	1	28	3242.29	27	3095.33
5	1	38	1985.5	38	1893.18
6	1	31	4753.45	30	4785
7	1	32	4234.81	31	3955
8	1	35	3907.29	36	3800.81
9	1	30	6060.1	32	5955
10	1	36	5143.14	37	5299.62
11	1	38	3514.18	39	3561.74
12	1	29	3751.83	30	3948.27
13	1	31	3738.13	31	3655.1

## After

	A	B	C	D	E	F	G
1	Participant	Group	TMR	Time	Accuracy	Accuracy_perc	
2	S2	SWS	Cued	Morning	12	60	
3	S3	SWS	Cued	Morning	12	60	
4	S4	SWS	Cued	Morning	14	70	
5	S5	SWS	Cued	Morning	13	65	
6	S7	SWS	Cued	Morning	15	75	
7	S8	SWS	Cued	Morning	6	30	
8	S9	SWS	Cued	Morning	13	65	
9	S10	SWS	Cued	Morning	14	70	
10	S11	SWS	Cued	Morning	11	55	
11	S12	SWS	Cued	Morning	14	70	
12	S13	SWS	Cued	Morning	19	95	
13	S14	SWS	Cued	Morning	11	55	
14	S15	SWS	Cued	Morning	13	65	
15	S16	SWS	Cued	Morning	9	45	
16	S18	SWS	Cued	Morning	15	75	
17	S19	SWS	Cued	Morning	9	45	

# First attempt

```
setwd("C:/Users/Anne/Analyses/")
dat <- read.csv('file.csv')

library(tidyverse)
library(ggplot2)
library(ggpubr)

p <- ggplot(dat, aes(x = Group, y = Accuracy_perc,
  colour = TMR)) +
  geom_violin() +
  labs(y = "Accuracy (% correct)") +
  scale_colour_manual(values=c("#E69F00", "#56B4E9"))
p
```

Error in ggplot(dat, aes(x = Group, y = Accuracy\_perc, colour = TMR, : object 'dat' not found

# Okay, actual first attempt

```
setwd("C:/Users/Anne/Analyses/")
```

```
dat <- read.csv('file.csv', header=TRUE,  
  fill=TRUE, sep=";", check.names=FALSE,  
  blank.lines.skip = TRUE)
```

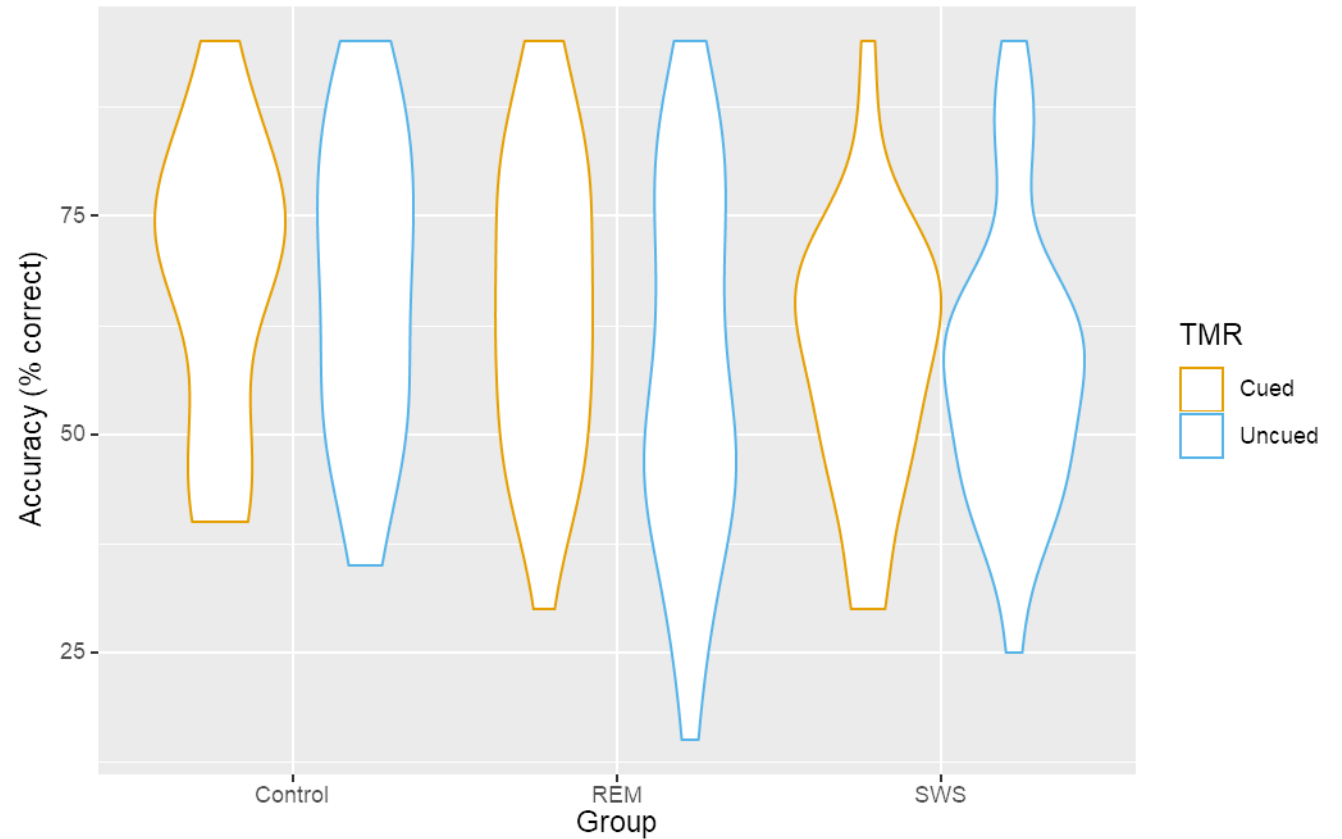
```
library(tidyverse)
```

```
library(ggplot2)
```

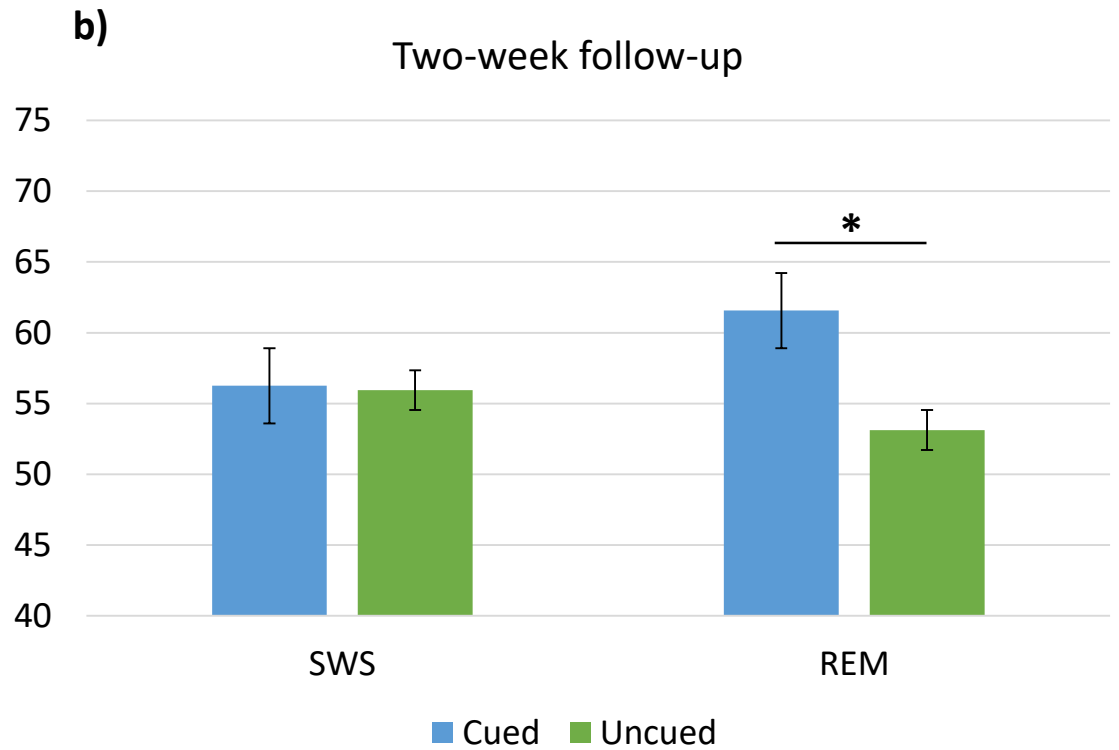
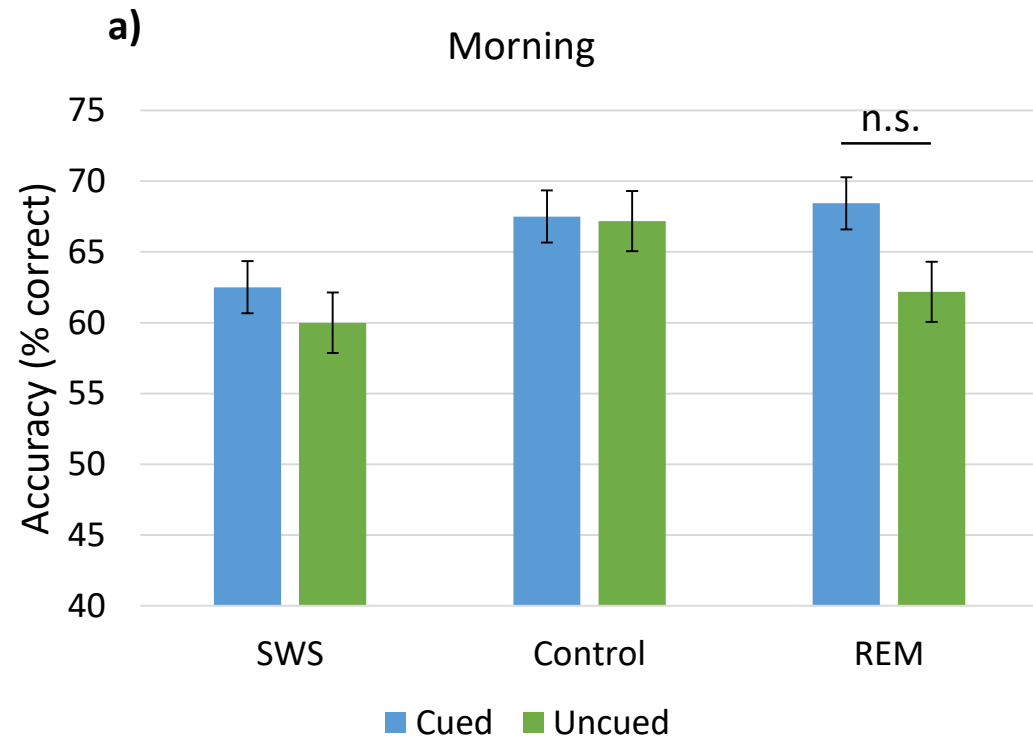
```
library(ggpubr)
```

```
p <- ggplot(dat, aes(x = Group, y =  
  Accuracy_perc, colour = TMR)) +  
  geom_violin() +  
  labs(y = "Accuracy (% correct)") +  
  scale_colour_manual(values=c("#E69F00",  
    "#56B4E9"))
```

p



# Before





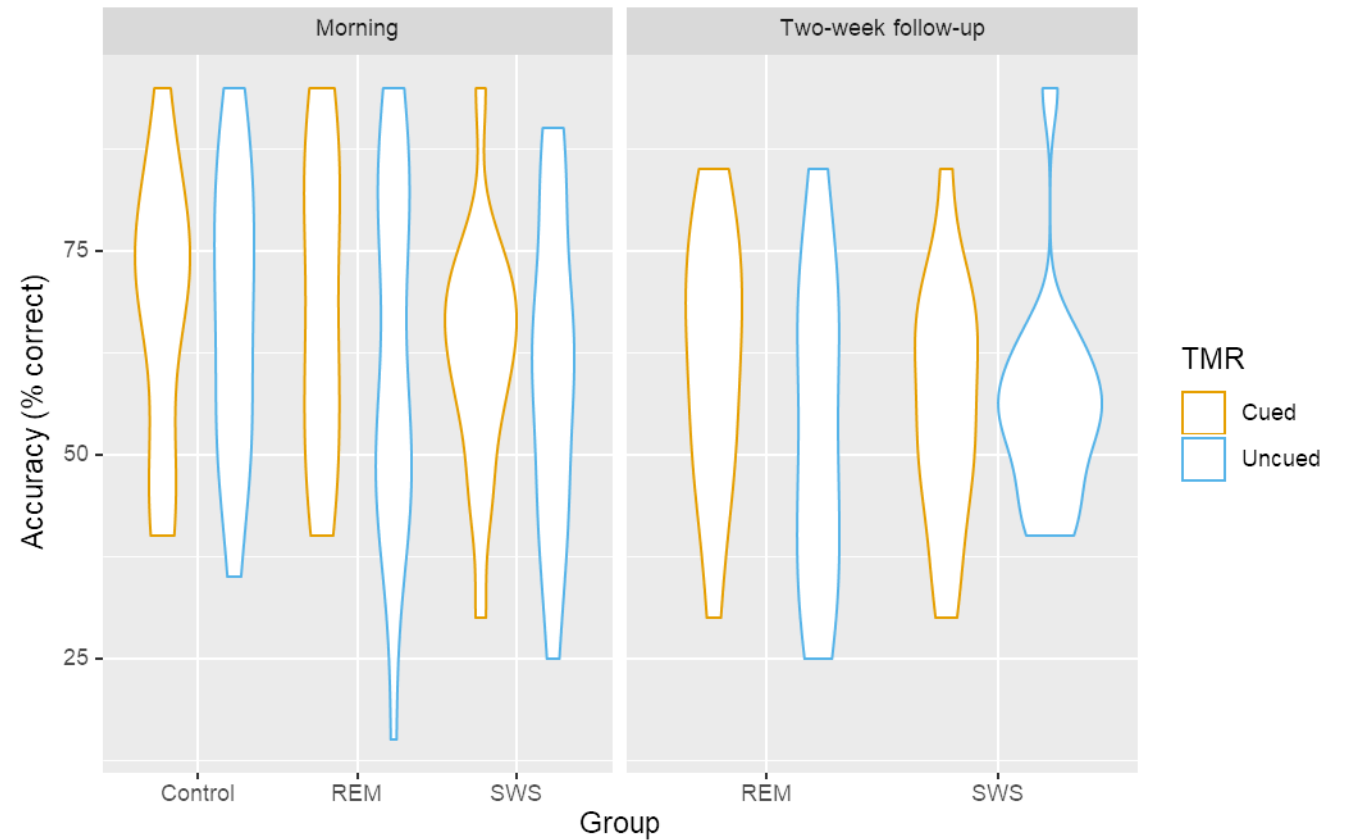
# Adding facets

```
setwd("C:/Users/Anne/Analyses/")

dat <- read.csv('file.csv', header=TRUE,
  fill=TRUE, sep=";", check.names=FALSE,
  blank.lines.skip = TRUE)

library(tidyverse)
library(ggplot2)
library(ggpubr)

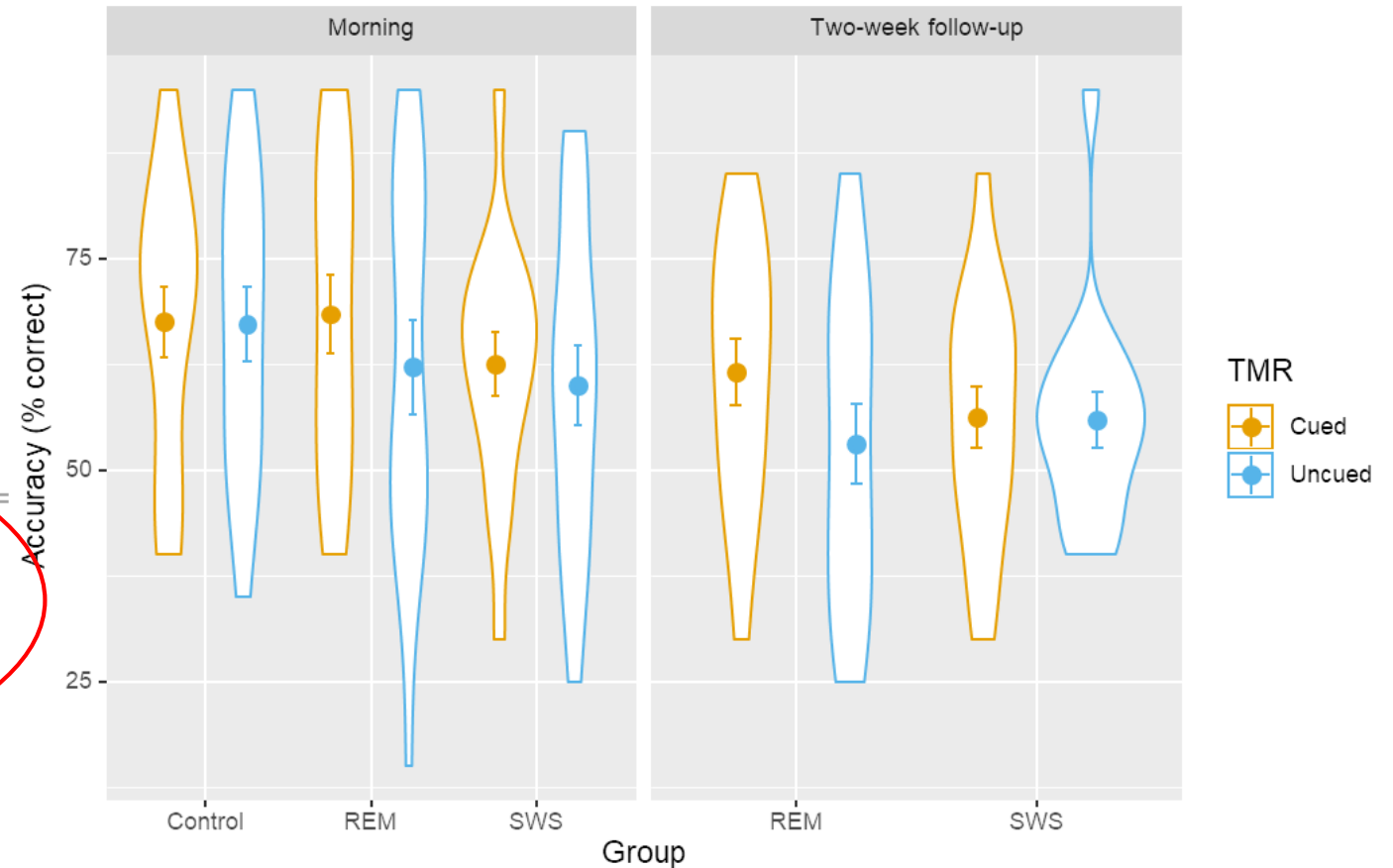
p <- ggplot(dat, aes(x = Group, y =
  Accuracy_perc, colour = TMR)) +
  geom_violin() +
  labs(y = "Accuracy (% correct)") +
  scale_colour_manual(values=c("#E69F00",
    "#56B4E9")) +
  facet_wrap(~Time, scales = "free_x")
p
```



# Adding error bars

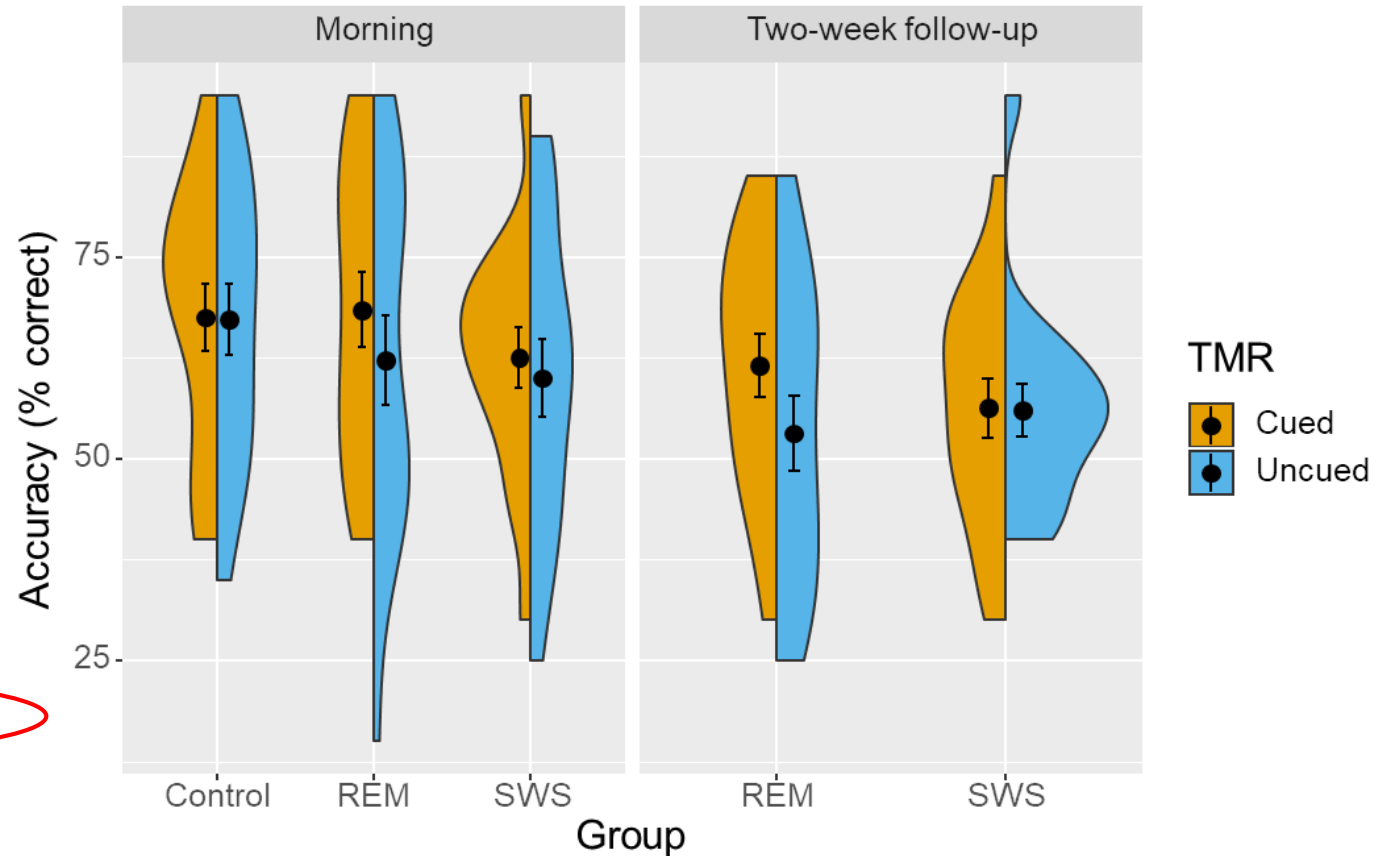
```
p <- ggplot(dat, aes(x = Group, y =  
  Accuracy_perc, colour = TMR)) +  
  geom_violin() +  
  labs(y = "Accuracy (% correct)") +  
  scale_colour_manual(values=c("#E69F00",  
    "#56B4E9")) +  
  facet_wrap(~Time, scales = "free_x") +  
  geom_point(data = dat_summary, position=  
    position_dodge(1)) +  
  geom_errorbar(data = dat_summary, aes  
    (ymin = Accuracy_perc - se, ymax =  
    Accuracy_perc + se), width=.1,  
    position= position_dodge(1))
```

p

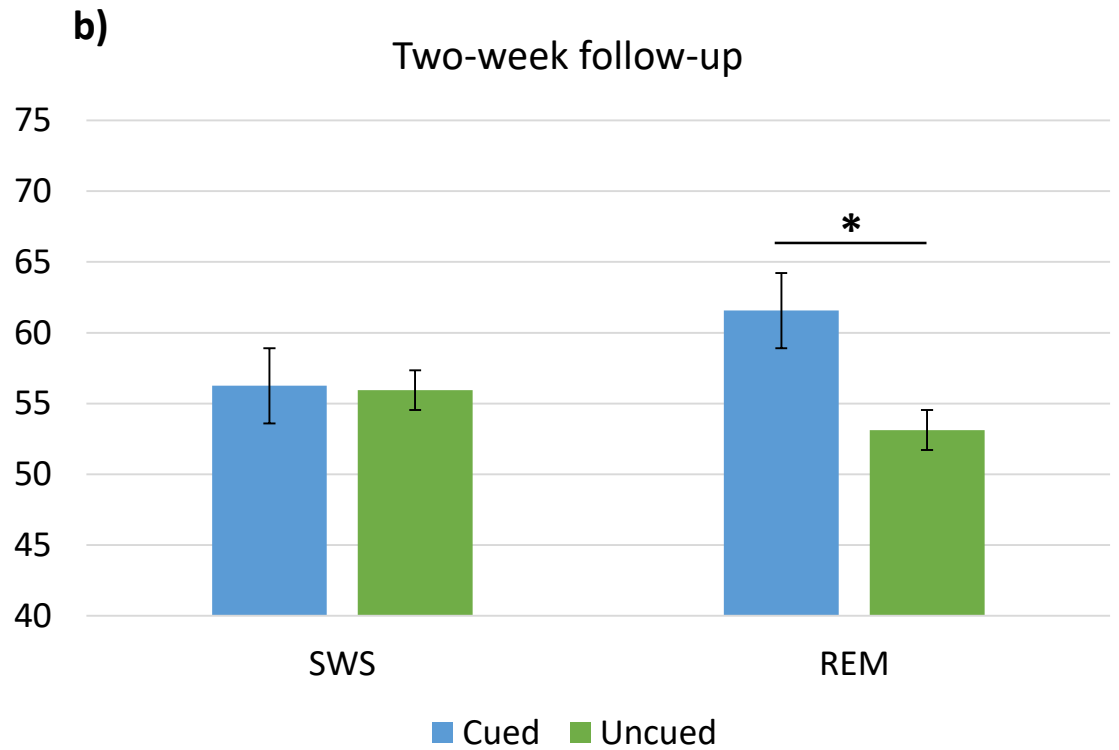
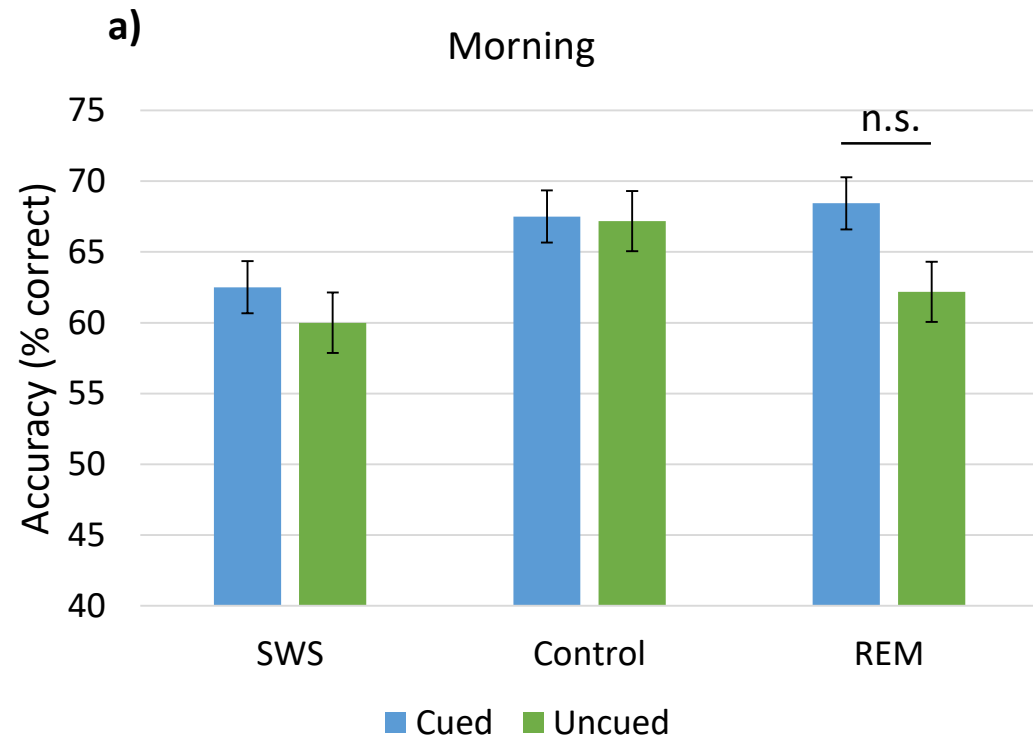


# Split violin, increase text size

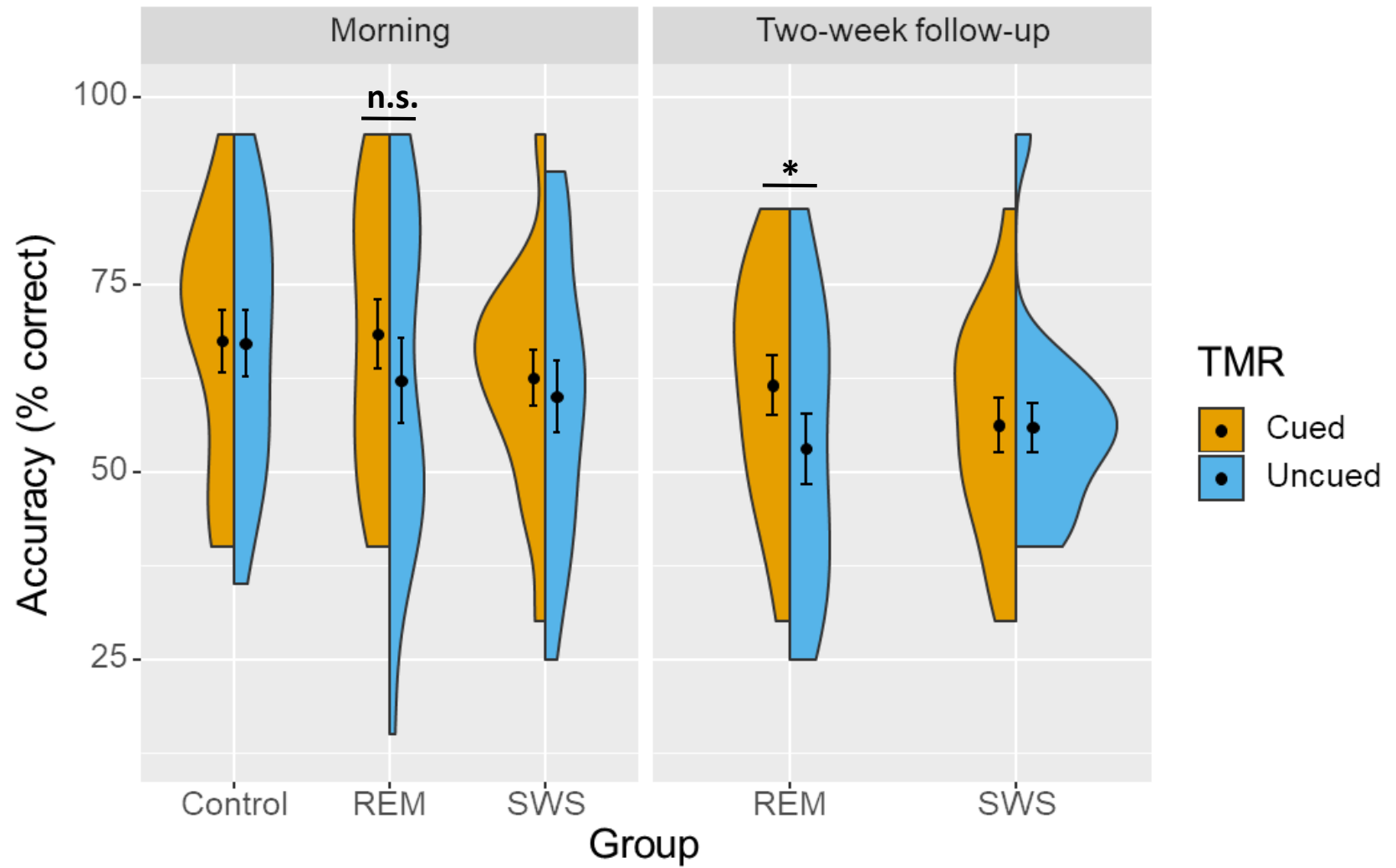
```
p <- ggplot(dat, aes(x = Group, y =  
  Accuracy_perc, fill = TMR)) +  
  geom_split_violin() +  
  labs(y = "Accuracy (% correct)") +  
  scale_fill_manual(values=c("#E69F00",  
    "#56B4E9"))+  
  facet_wrap(~Time, scales = "free_x")+  
  geom_point(data = dat_summary, position=  
    position_dodge(0.3))+  
  geom_errorbar(data = dat_summary, aes  
    (ymin = Accuracy_perc - se, ymax =  
    Accuracy_perc + se), width=.1,  
    position = position_dodge(0.3))+  
  theme(text = element_text(size = 15))  
p
```



# Before



# After



# Thank you!

- Reach me on [KoopmanAC@cardiff.ac.uk](mailto:KoopmanAC@cardiff.ac.uk)
- Yes, I'm on twitter: @AnneLikesSleep
- Code & presentation on [GitHub.com/annekoopman](https://github.com/annekoopman)

