

# Word Association RT First Look

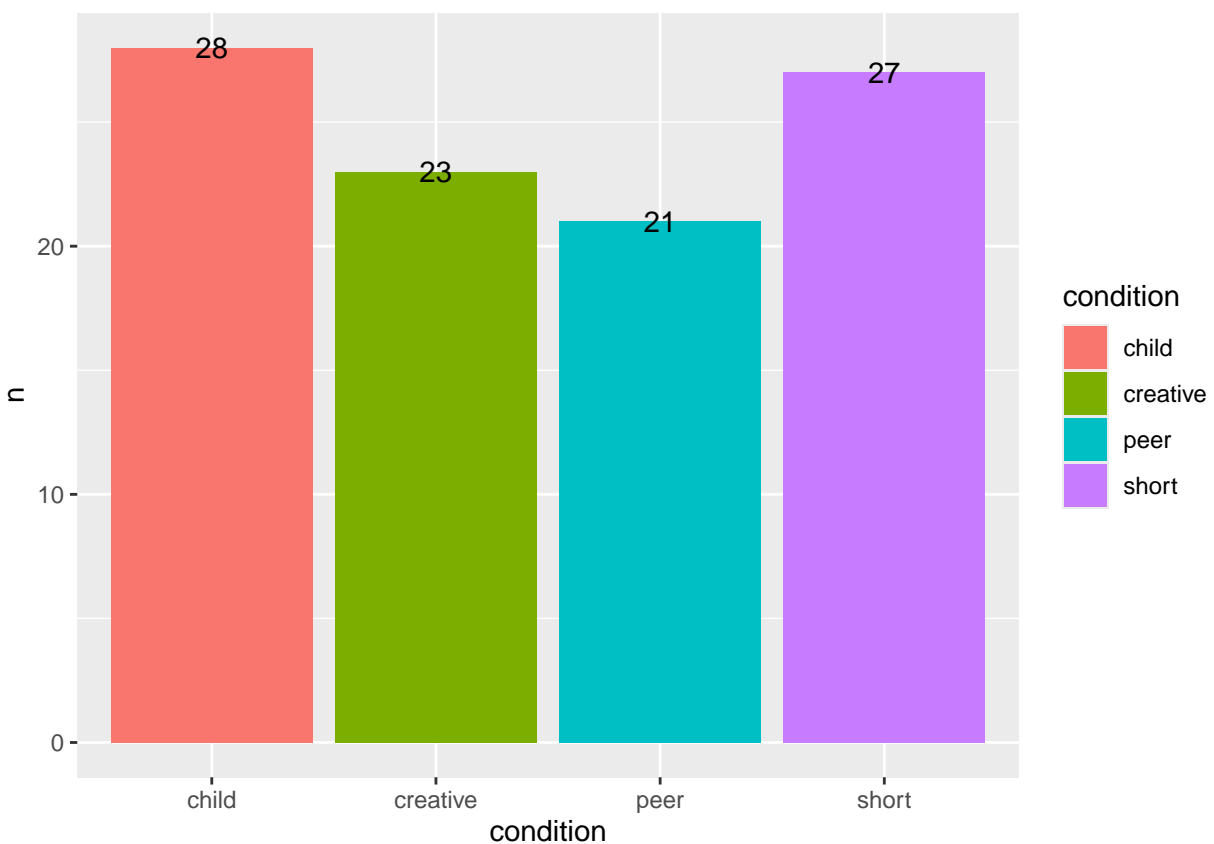
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2025-02-28

Ideas in the lab have been circulating around an idea of “semantic warping”, or the context-driven shifting of semantic weights that make concepts related to the context more available. Below, we describe a study investigating how response times to association generation may differ between conditions where you are given a coherent context to guide associative behavior versus explicit rules as to what kinds of responses are appropriate.

## Condition completion

Target sample size is 30 per condition

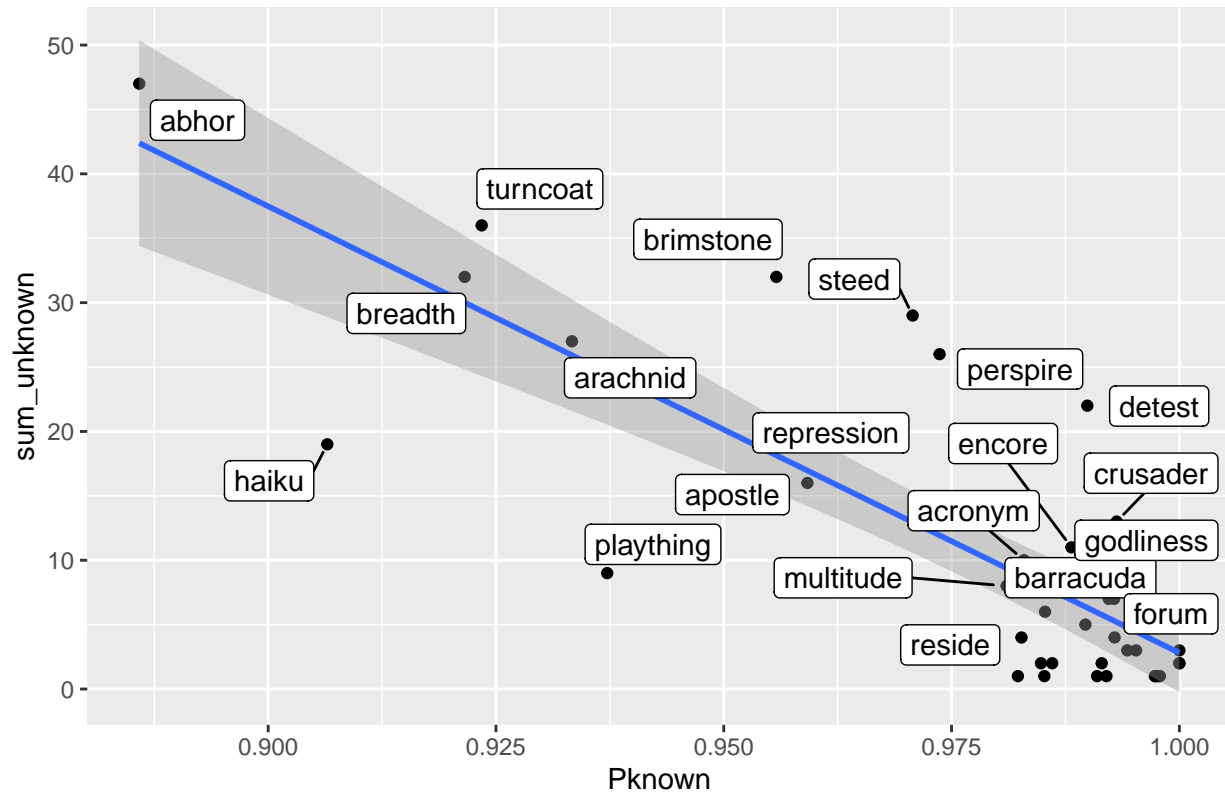


## Participant-wise behavior over cues

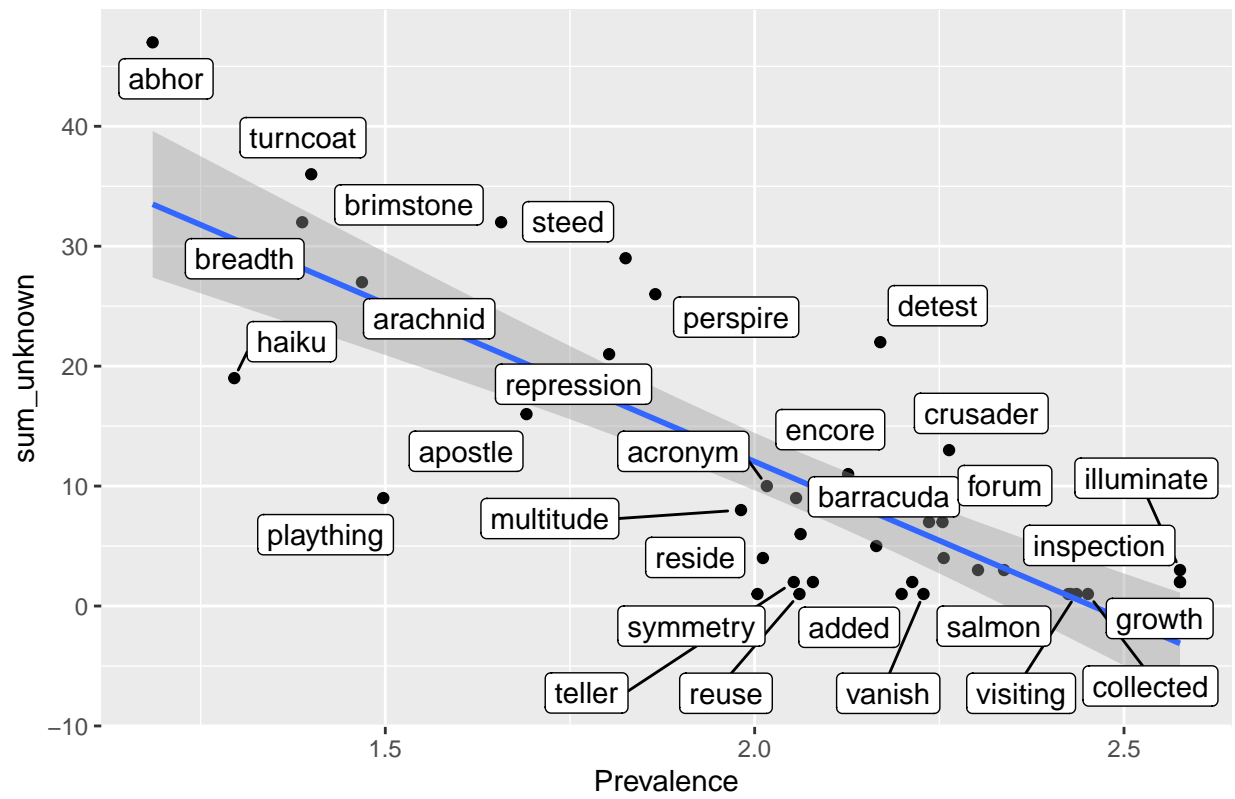
**Regressing blank response cues with Prevalence. Removing responses faster than 150 ms and anything further than 3SDs from the participant-wise mean**

This was accomplished by filtering out response latencies less than 150ms, grouping by participant and computing z-scores, and filtering out responses that are more than three standard deviations away from the participant means. I then plot the cues in terms of their Prevalence in the MOESM database and their missingness in our response set.

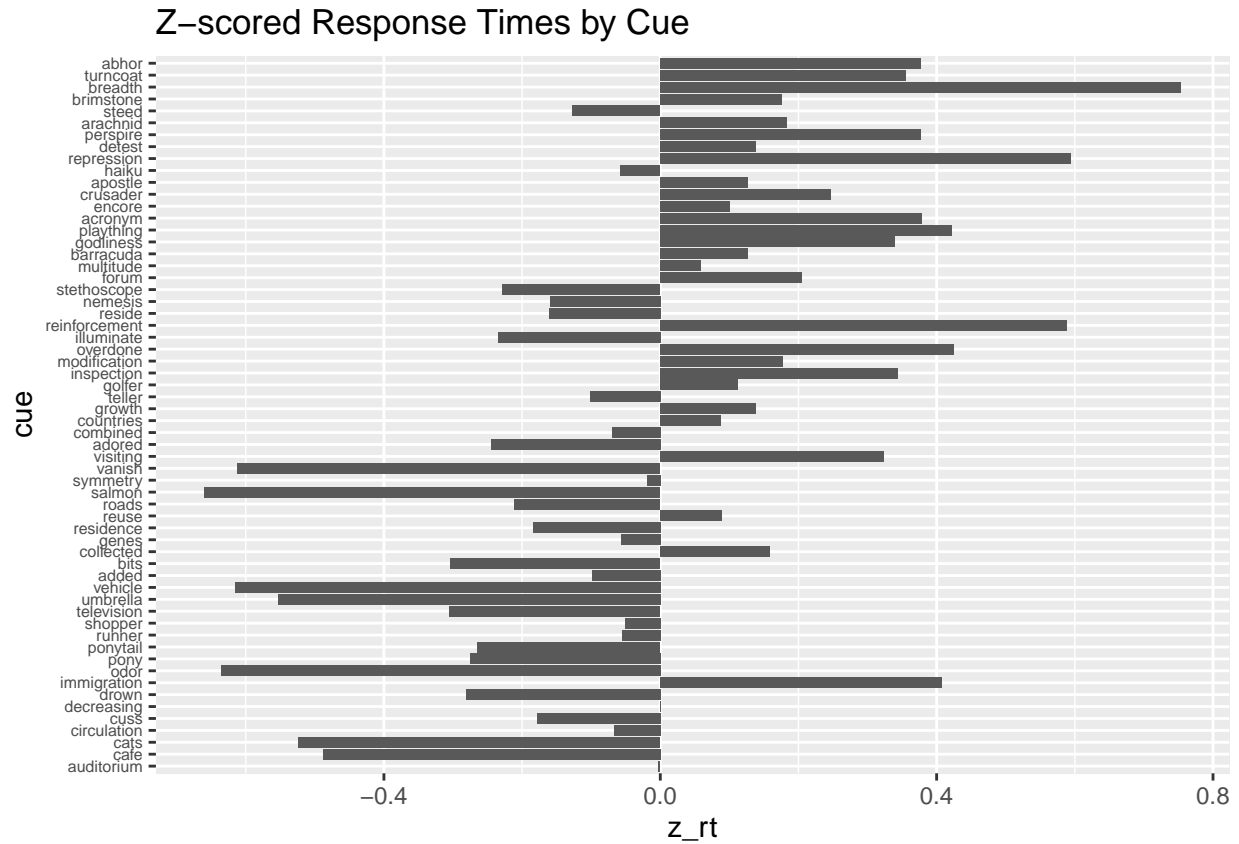
Blank Responses by Percentage known



Blank Responses by Prevalence



Participant Z-scored response time by cue. In descending order of number of missing responses. Same procedure as above, but did not filter on standard deviations from the participant means.



cue	sum_unknown
abhor	47
turncoat	36
breadth	32
brimstone	32
steed	29
arachnid	27
perspire	26
detest	22
repression	21
haiku	19
apostle	16
crusader	13
encore	11
acronym	10
plaything	9
barracuda	9
multitude	8
godliness	7
forum	7
stethoscope	6
nemesis	5

cue	sum_unknown
reinforcement	4
reside	4
illuminate	3
overdone	3
modification	3
teller	2
growth	2
inspection	2
countries	2
golfer	2
combined	2
visiting	1
collected	1
roads	1
salmon	1
added	1
adored	1
bits	1
symmetry	1
vanish	1
genes	1
residence	1
reuse	1

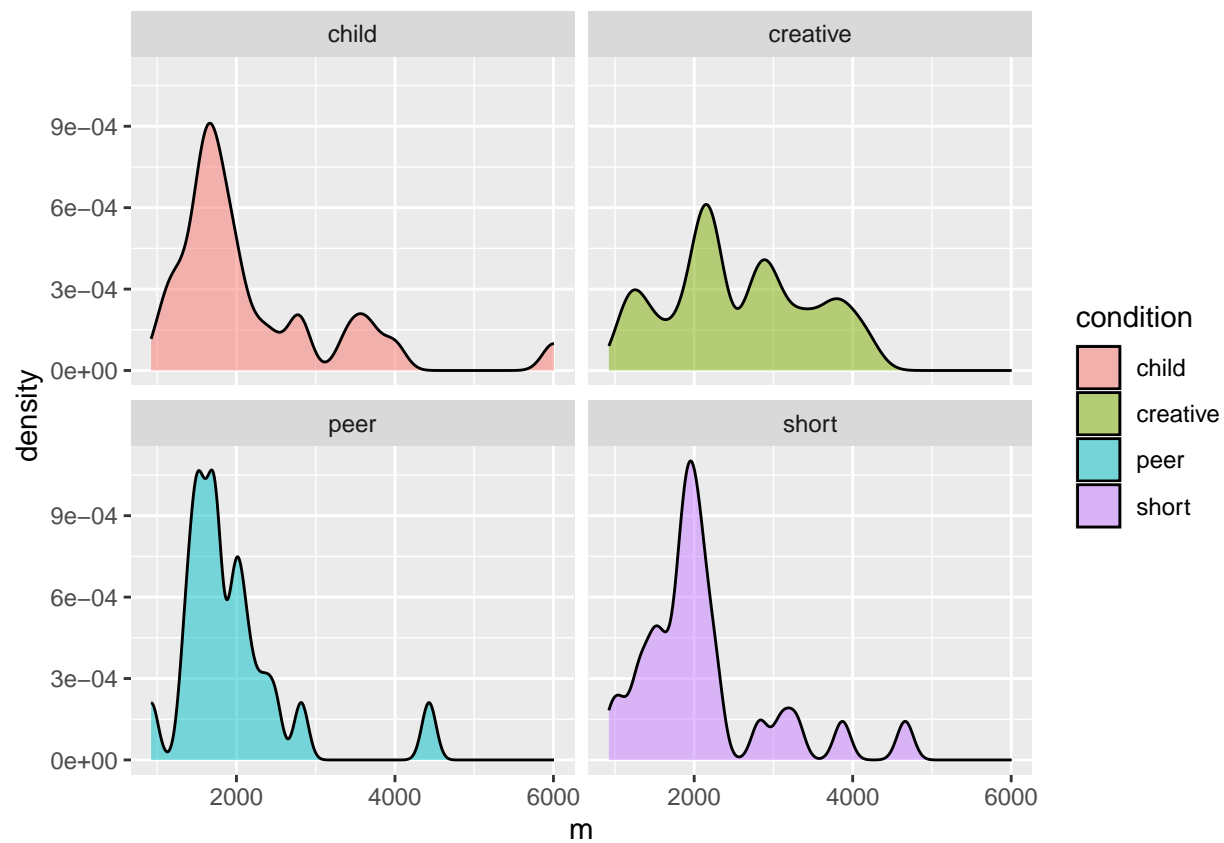
## Reaction time

### Response time participant distributions

I think the participant at 6,000 ms was skewing things a bit because they have extreme values even within 3 standard deviations of their mean

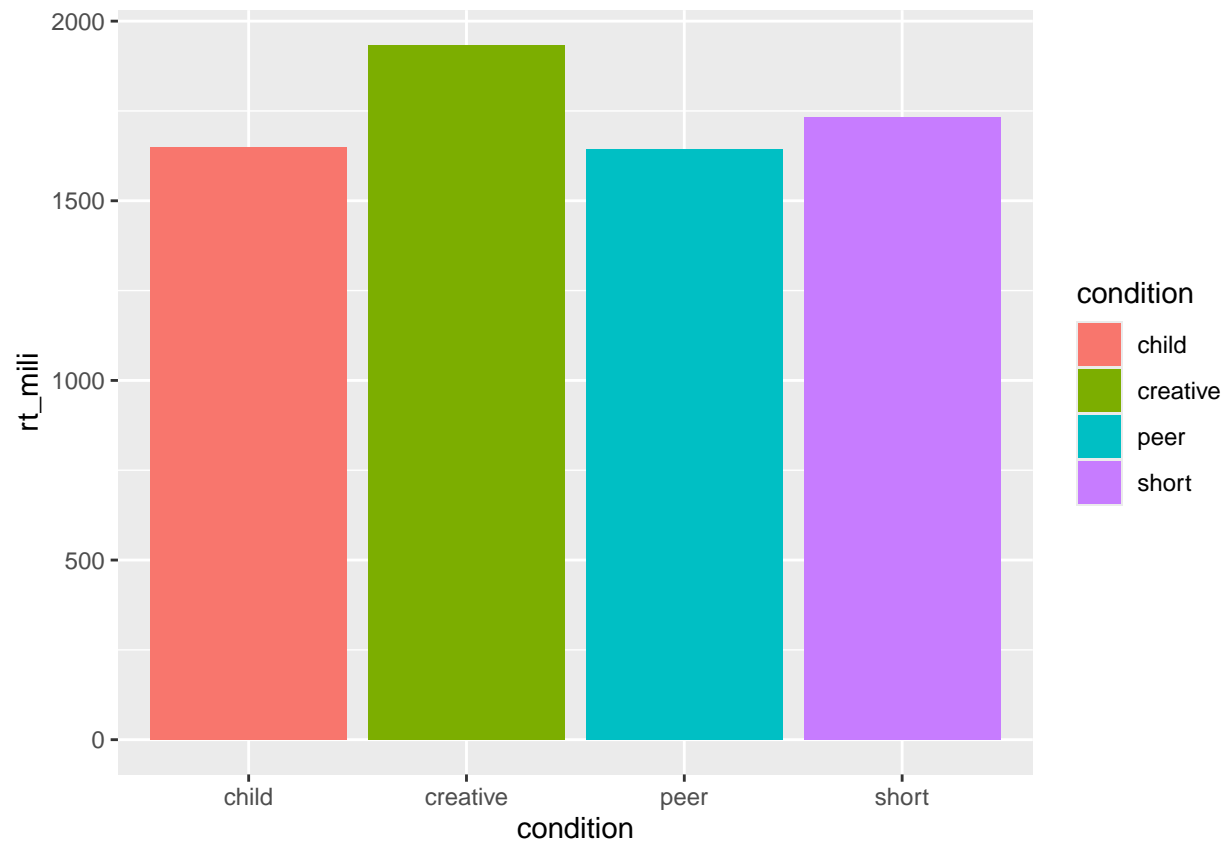
```
pp_means <- combined_meta %>%
  group_by(participant) %>%
  mutate(m = mean(rt_mili)) %>%
  mutate(participant = as.factor(participant))

ggplot(pp_means, aes(x = m, fill = condition)) +
  geom_density(alpha = 0.5) +
  facet_wrap(~condition)
```

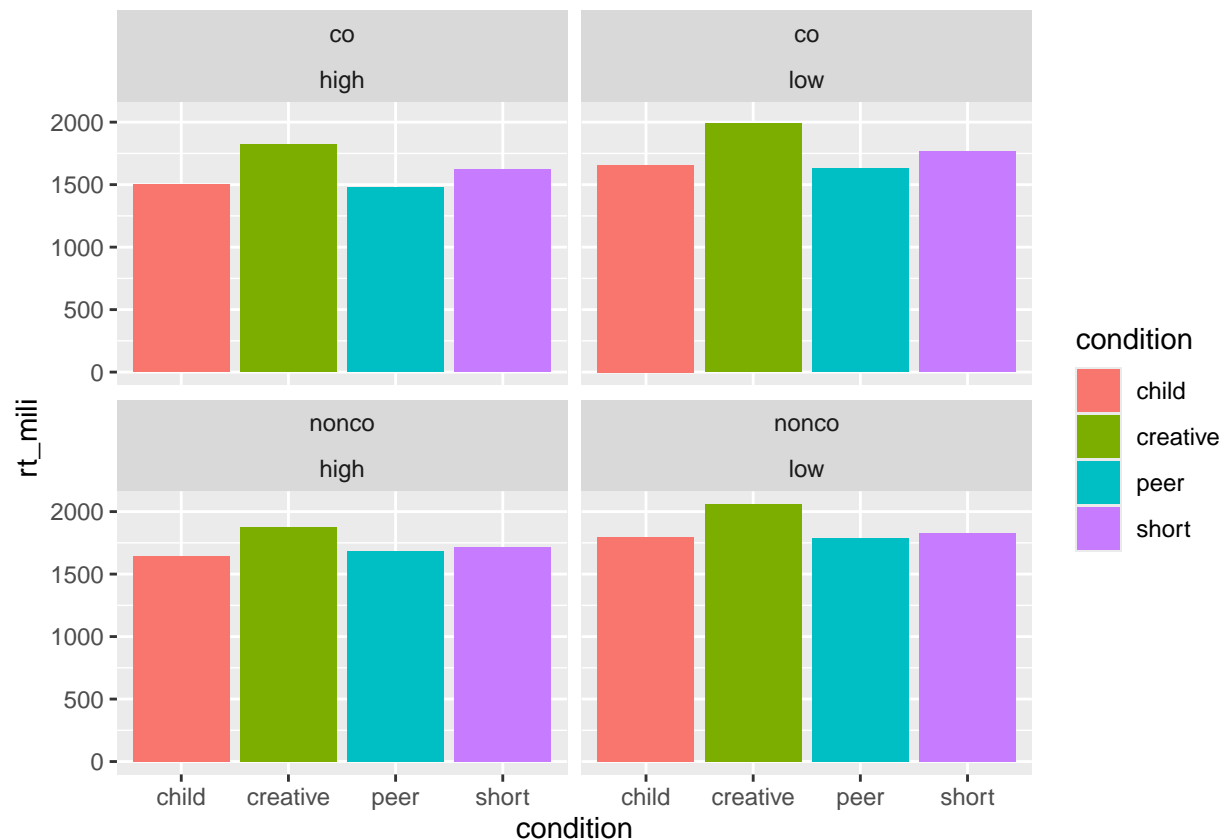


Data presented henceforth is excluding response quicker than 150 ms and more than 3 standard deviations from the participant-wise mean. Also excluded responses above the 90th percentile of all responses.

Reaction time by condition



## Reaction time by condition and word-type



## Psycholinguistic measures

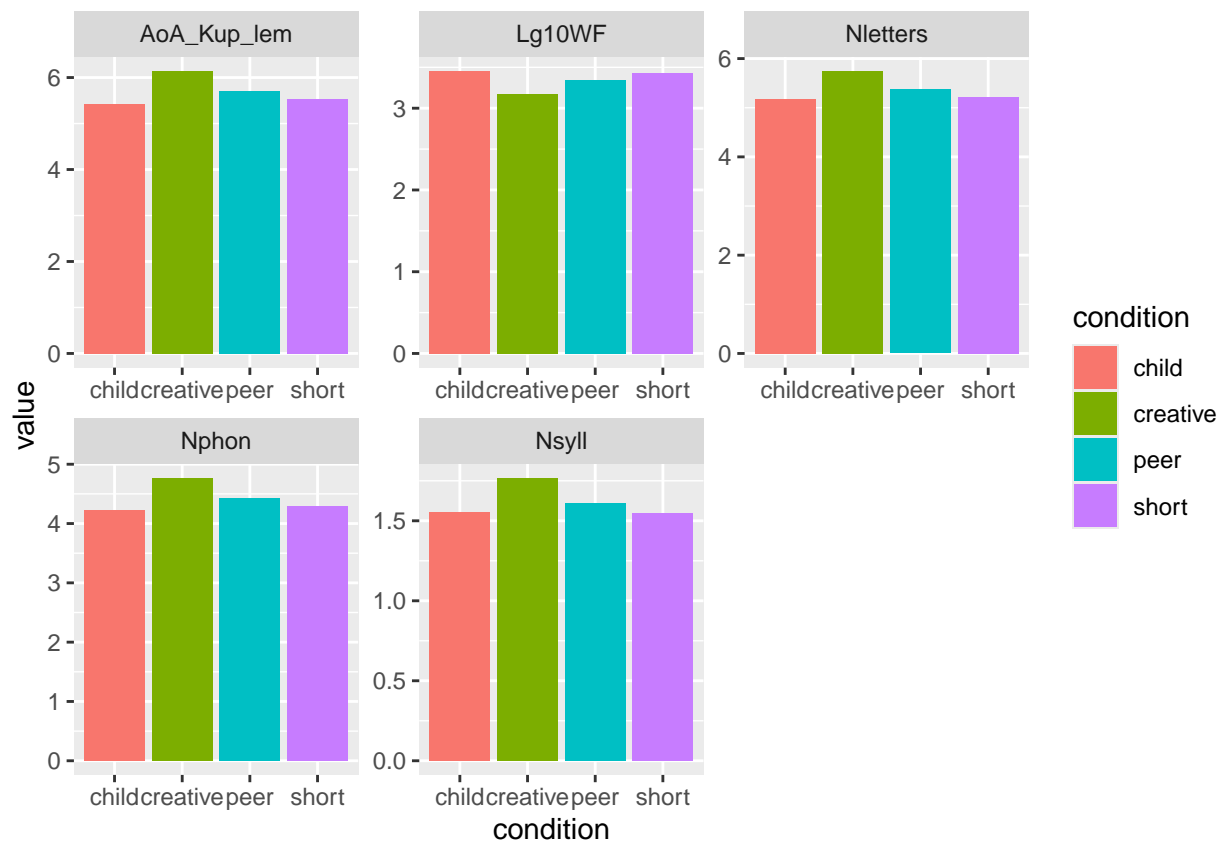
## Same dataframe as above, but looking at distribution of psycholinguistic measures by condition.

```
rt_df_long_psychling <- rt_df %>%
  pivot_longer(cols = c("Lg10WF", "AoA_Kup_lem", "Nphon", "Nsyll", "Nletters"),
               names_to = "metric",
               values_to = "value")

ggplot(rt_df_long_psychling, aes(x = condition, y = value, fill = condition)) +
  geom_bar(stat = "summary", fun = "mean") +
  facet_wrap(~metric, scales = "free")
```

```
## Warning: Removed 4095 rows containing non-finite outside the scale range
## ('stat_summary()').
```





```
rt_df_long_psychling <- rt_df %>%
  pivot_longer(cols = c("Lg10WF", "AoA_Kup_lem", "Nphon", "Nsyll", "Nletters"),
    names_to = "metric",
    values_to = "value")

ggplot(rt_df_long_psychling, aes(x = condition, y = value, fill = condition)) +
  geom_bar(stat = "summary", fun = "mean") +
  theme(axis.text.x = element_text(angle = 90)) +
  facet_grid(type ~ metric, scales = "free")
```

```
## Warning: Removed 4095 rows containing non-finite outside the scale range
## ('stat_summary()').
```

