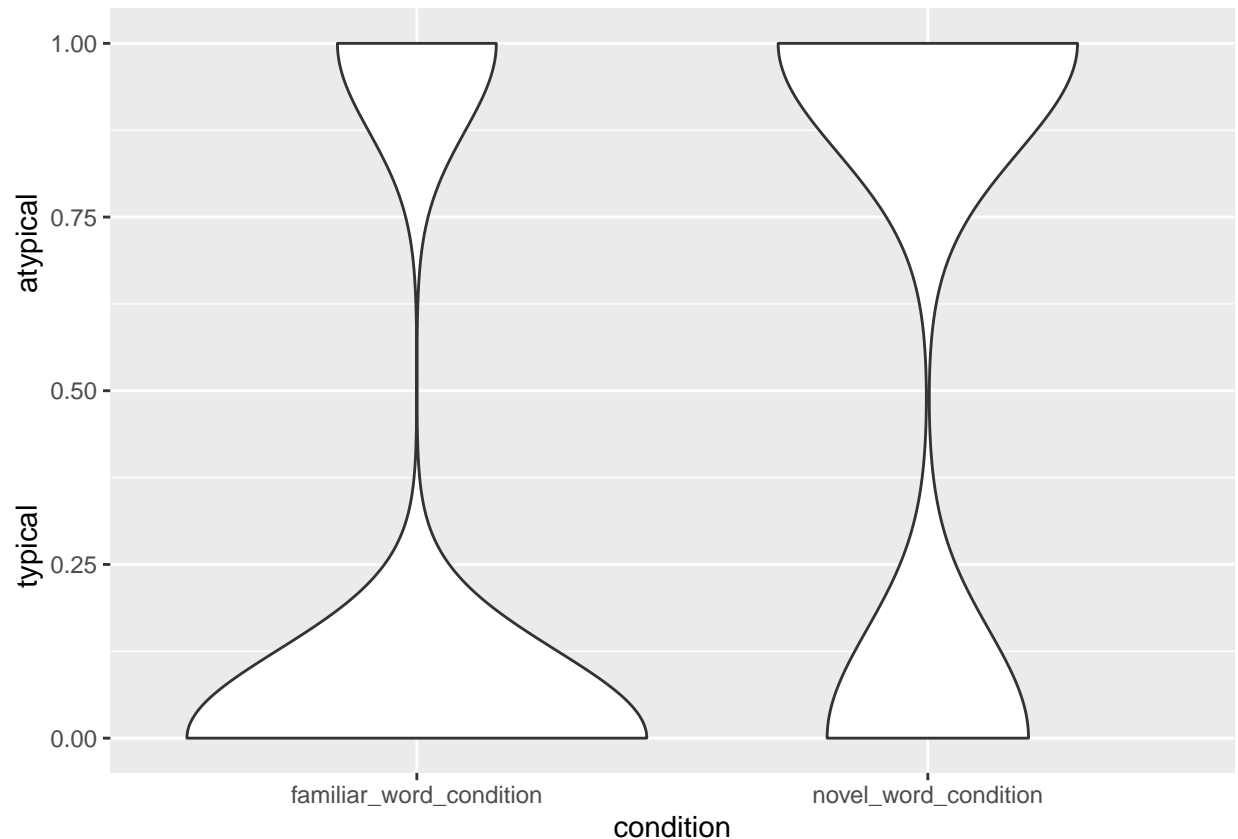


pilot analysis

2025-03-12

```
raw_data <- list.files( path=here("../data/pilot_raw_data"), full.names=TRUE ) %>%  
  map_dfr( read_csv )  
  
data <- raw_data %>%  
  filter("study_id" != "UNSAVED_STUDY",  
         !is.na(study_id)) %>%  
  select(-prolific_id)  
  
write_csv(data, here("../data/pilot_data.csv"))
```

```
data <- read_csv(here("../data/pilot_data.csv")) %>%  
  mutate(stimulus_subclass = str_remove(image_name, "^[^_]*_"),  
         stimulus_subclass = str_remove(stimulus_subclass, "_.*")) %>%  
  mutate(typicality = typicality - 1)  
  
data %>%  
  ggplot(aes(x = condition, y = typicality)) +  
  geom_violin() +  
  ylab("typical          atypical")
```



Do people tend to choose more atypical objects when prompted with a novel word?

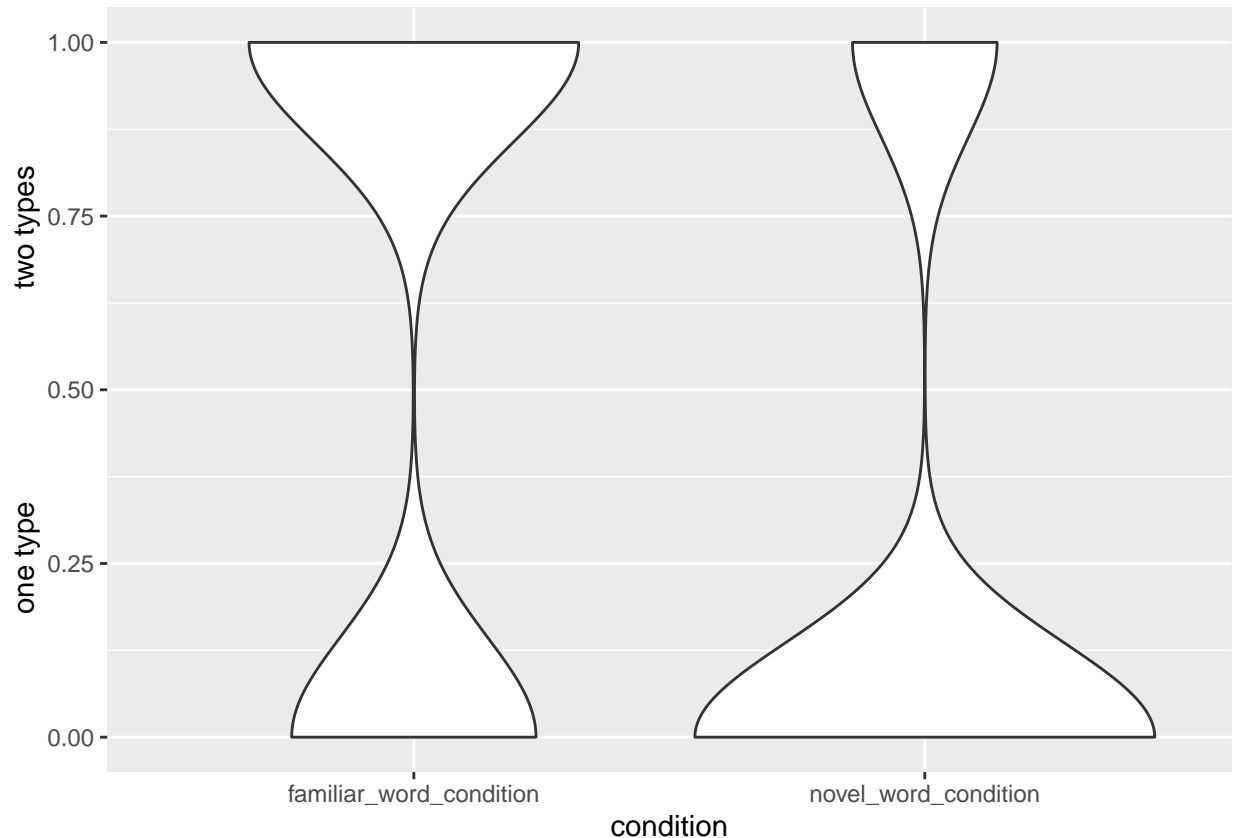
Participants' choices on familiar word (e.g., “leaf”) vs. novel word (e.g., “neft”) trials. Higher values indicate they chose more atypical items. Stimuli typicality scored by experimenter on a binary scale. People choose more atypical exemplars when prompted with a novel compared to a familiar word. They also strongly prefer typical exemplars when prompted with familiar words.

```
glmer(typicality ~ condition + (1|participant_id), family = "binomial",
      data = data) %>%
  tidy()
```

```
## # A tibble: 3 x 7
##   effect    group      term      estimate std.error statistic    p.value
##   <chr>    <chr>    <chr>      <dbl>    <dbl>    <dbl>    <dbl>
## 1 fixed    <NA>    (Intercept) -1.16    0.177    -6.54 6.28e-11
## 2 fixed    <NA>    conditionnovel~ 1.59    0.271     5.85 5.00e- 9
## 3 ran_pars participant_id sd__(Intercept) 0.616    NA        NA    NA
```

```
data <- data %>%
  group_by(participant_id, trial_number) %>%
  mutate(distinct_types = n_distinct(stimulus_subclass) - 1) %>%
  ungroup()

data %>%
  ggplot(aes(x = condition, y = distinct_types)) +
  geom_violin() +
  ylab("one type                two types")
```



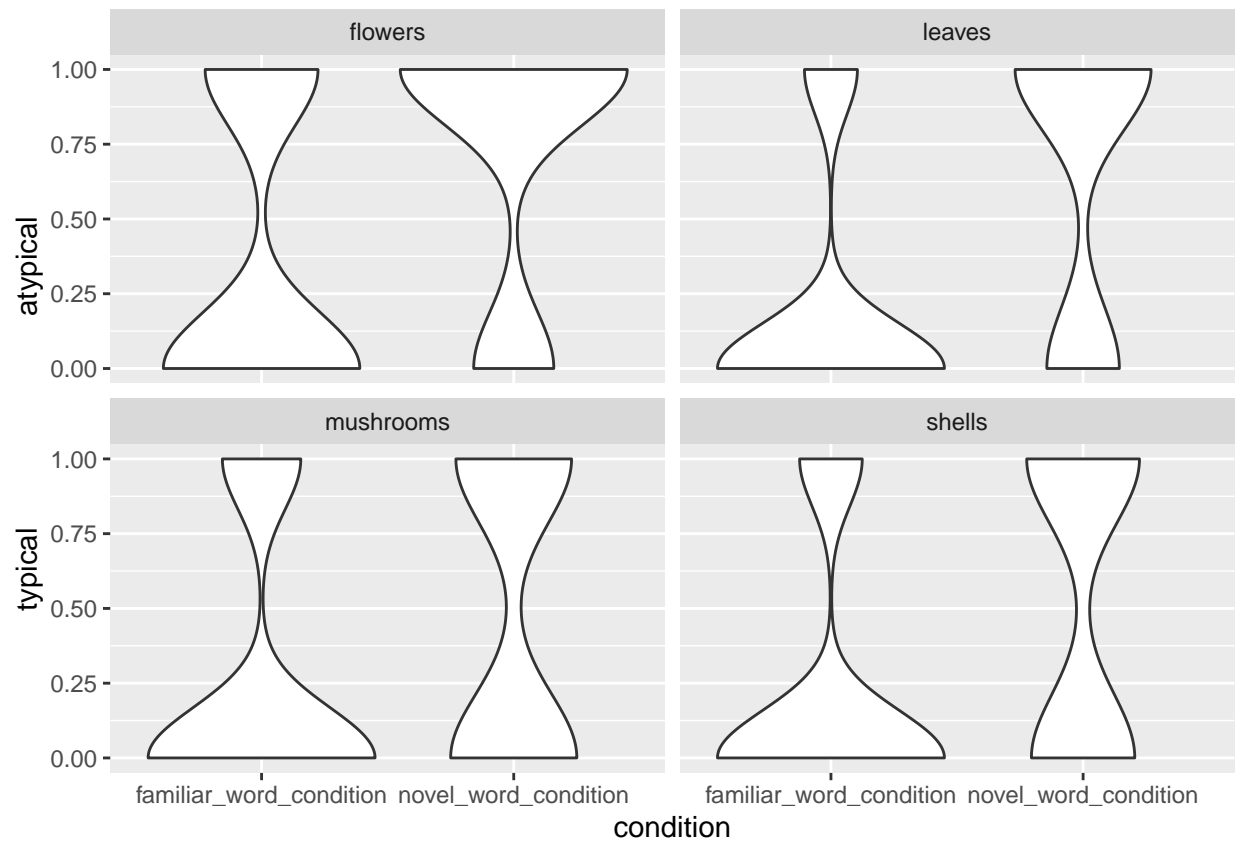
Do people tend to choose more varied objects when prompted with familiar vs. novel words? Another way to tell whether people think the meaning of a novel word is narrower is to test whether they choose one subtype (e.g., bean-shaped leaves) vs. multiple subtypes (e.g., teardrop-shaped and oak-shaped leaves).

Above, participants' choices of exemplars; they have two choices on each trial. A score of 0 reflects that they chose all of one subtype, and a score of 1 reflects that they chose two distinct subtypes. People tend to choose fewer distinct subtypes when prompted with novel words.

```
glmer(distinct_types ~ condition + (1|participant_id), family = "binomial",
      data = data) %>%
  tidy()
```

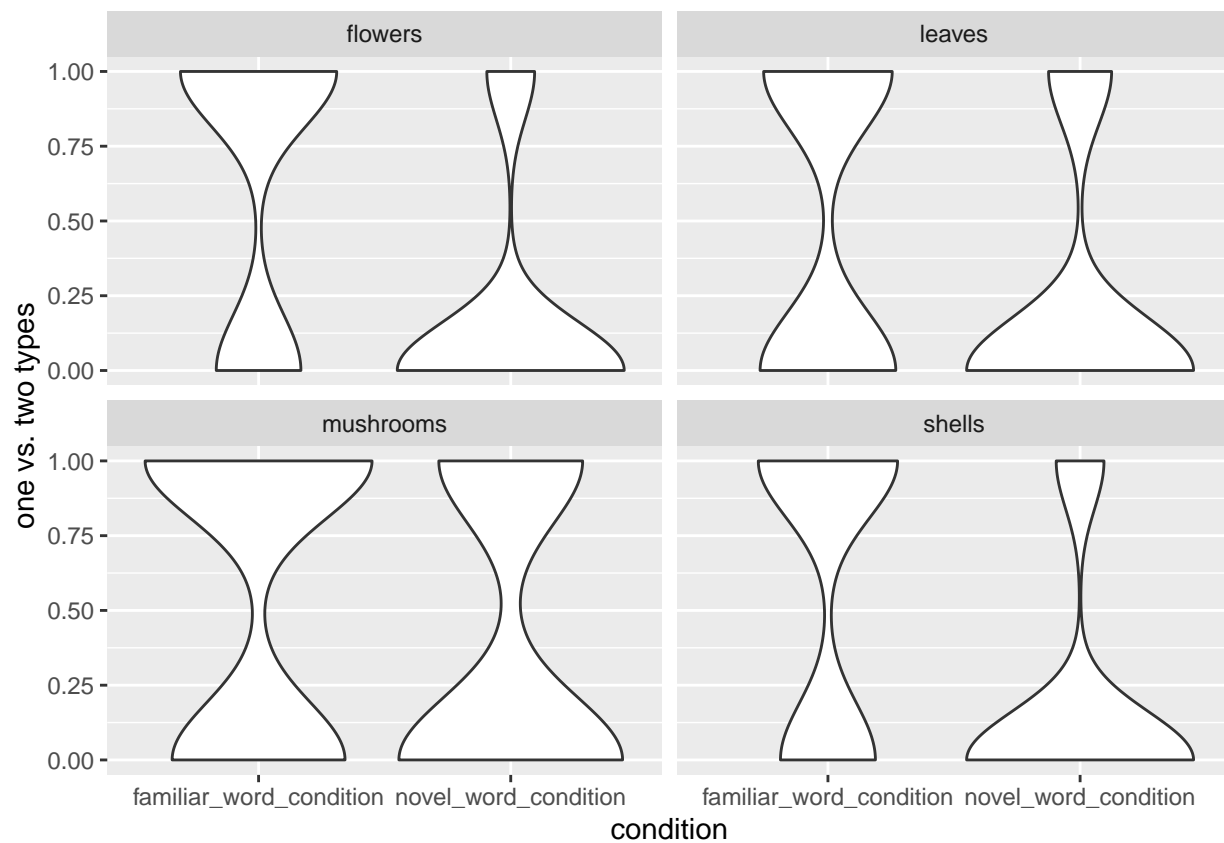
```
## # A tibble: 3 x 7
##   effect   group      term      estimate std.error statistic  p.value
##   <chr>   <chr>    <chr>      <dbl>    <dbl>    <dbl>    <dbl>
## 1 fixed   <NA>    (Intercept)  0.511    0.498     1.03  3.05e-1
## 2 fixed   <NA>    conditionnovel_ -2.95    0.897    -3.29  9.97e-4
## 3 ran_pars participant_id sd__(Intercept)  2.70    NA        NA     NA
```

```
data %>%
  ggplot(aes(x = condition, y = typicality)) +
  geom_violin() +
  facet_wrap(~category) +
  ylab("typical          atypical")
```



Examining typicality across stimulus types.

```
data %>%
  ggplot(aes(x = condition, y = distinct_types)) +
  geom_violin() +
  facet_wrap(~category) +
  ylab("one vs. two types")
```



Examining distinct type choices across stimulus types.