Animacy Nouns: Graphs for Accuracy

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```
table(d$Task,d$Label)
```

```
##
##           test_ani test_val
##   Animacy     4800        0
##   Valence        0     4800
```

```
print(unique(d$Word))
```

```
##  [1] "intruder"  "gunshot"   "princess"  "sibling"   "dictator"  "chipmunk"
##  [7] "puppy"     "award"     "child"     "sandwich"  "slave"     "feast"
## [13] "sunshine"  "comedian"  "wiretap"   "corpse"    "flood"     "swastika"
## [19] "smallpox"  "widow"     "duckling"  "pizza"     "poison"    "leech"
## [25] "meadow"    "asshole"   "prize"     "laughter"  "mugger"    "inmate"
## [31] "bunny"     "husband"   "cocaine"   "maggot"    "doughnut"  "kitten"
## [37] "tapeworm"  "excrement" "heroin"    "dollar"
```

```
table(d$Key_value_F)
```

```
##
##    A    B
## 4800 4800
```

Summary Stats

```
agr <- d %>%
  group_by(Task) %>%
  summarize(MeanAccuracy = mean(Accuracy),
            SD = sd(Accuracy))
print(agr)
```

```
## # A tibble: 2 x 3
##   Task    MeanAccuracy    SD
##   <chr>          <dbl> <dbl>
## 1 Animacy        0.958 0.201
## 2 Valence        0.900 0.300
```

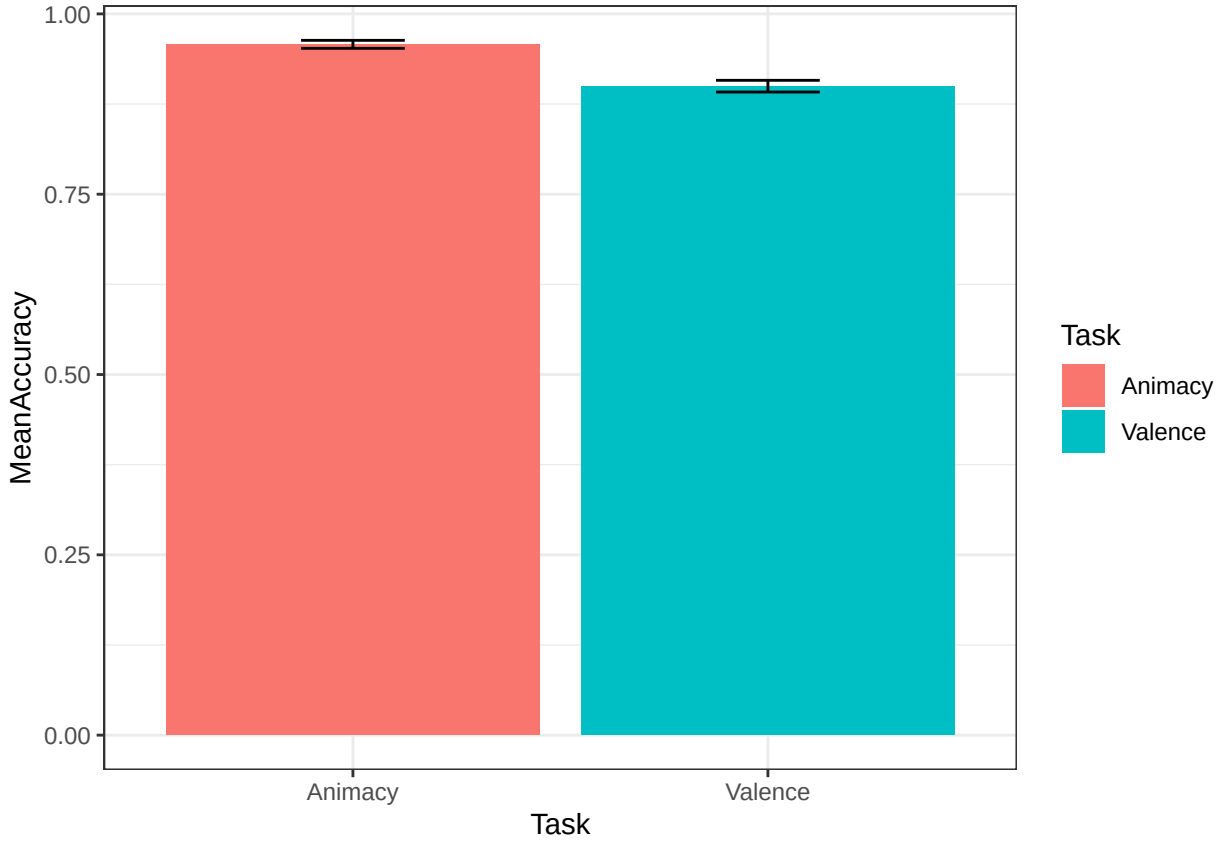
Graph Accuracy by Word

Overall Accuracy

```
agr <- d %>%
  group_by(Task) %>%
```

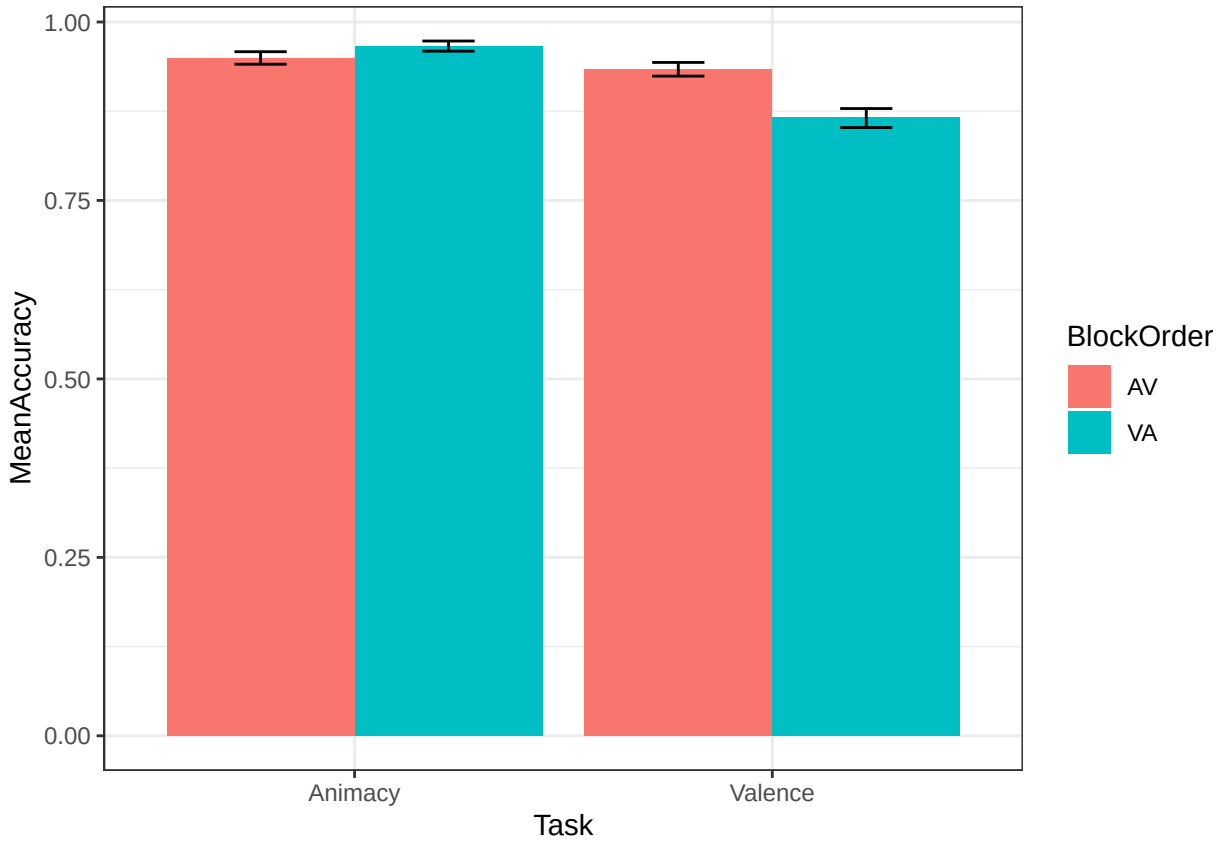
```
  reframe(MeanAccuracy = mean(Accuracy),
          CILow = ci.low(Accuracy),
          CIHigh = ci.high(Accuracy)) %>%
  mutate(YMin = MeanAccuracy - CILow,
         YMax = MeanAccuracy + CIHigh)
# View(agr)

dodge = position_dodge(.9)
ggplot(data=agr, aes(x=Task,y=MeanAccuracy, fill=Task)) +
  geom_bar(position=dodge,stat="identity") +
  geom_errorbar(aes(ymin=YMin,ymax=YMax),width=.25,position=position_dodge(0.9))
```




```
agr <- d %>%
  group_by(Task,BlockOrder) %>%
  reframe(MeanAccuracy = mean(Accuracy),
          CILow = ci.low(Accuracy),
          CIHigh = ci.high(Accuracy)) %>%
  mutate(YMin = MeanAccuracy - CILow,
         YMax = MeanAccuracy + CIHigh)
# View(agr)

dodge = position_dodge(.9)
ggplot(data=agr, aes(x=Task,y=MeanAccuracy, fill=BlockOrder)) +
  geom_bar(position=dodge,stat="identity") +
  geom_errorbar(aes(ymin=YMin,ymax=YMax),width=.25,position=position_dodge(0.9))
```

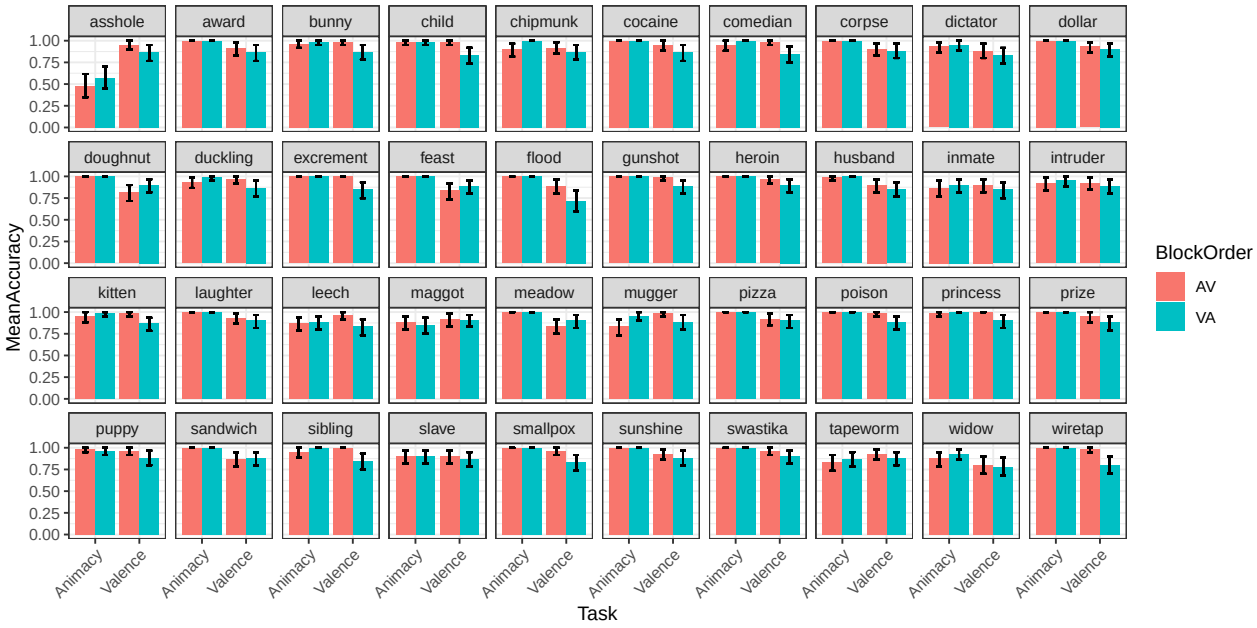


Mean Accuracy by Word / Task

```
agr <- d %>%
  group_by(Task,Word,BlockOrder) %>%
  # filter((Task == "Valence") & (BlockOrder == "VC") |
  #          (Task == "Animacy") & (BlockOrder == "CV")) %>%
  mutate(MeanAccuracy = mean(Accuracy),
         CILow = ci.low(Accuracy),
         CIHigh = ci.high(Accuracy)) %>%
  mutate(YMin = MeanAccuracy - CILow,
        YMax = MeanAccuracy + CIHigh)

agrr <- agr %>%
  group_by(Word,Task) %>%
  select(Word,Task,MeanAccuracy) %>%
  unique()

dodge = position_dodge(.9)
ggplot(data=agr, aes(x=Task,y=MeanAccuracy,fill=BlockOrder)) +
  geom_bar(position=dodge,stat="identity") +
  facet_wrap(~Word,ncol=10) +
  geom_errorbar(aes(ymin=YMin,ymax=YMax),width=.25,position=position_dodge(0.9)) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```




```
m <- lmer(MeanAccuracy ~ BlockOrder + (1|Word), data =agr)
summary(m)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: MeanAccuracy ~ BlockOrder + (1 | Word)
##    Data: agr
##
## REML criterion at convergence: -26026.3
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -4.0162 -0.6723  0.0955  0.7475  3.5477
##
## Random effects:
##  Groups   Name        Variance Std.Dev.
##  Word     (Intercept) 0.002035 0.04511
##  Residual             0.003807 0.06170
## Number of obs: 9600, groups:  Word, 40
##
## Fixed effects:
##                Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)   9.417e-01  7.188e-03  3.961e+01  131.01   <2e-16 ***
## BlockOrderVA -2.562e-02  1.259e-03  9.559e+03  -20.35   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##             (Intr)
## BlockOrdrVA -0.088
```

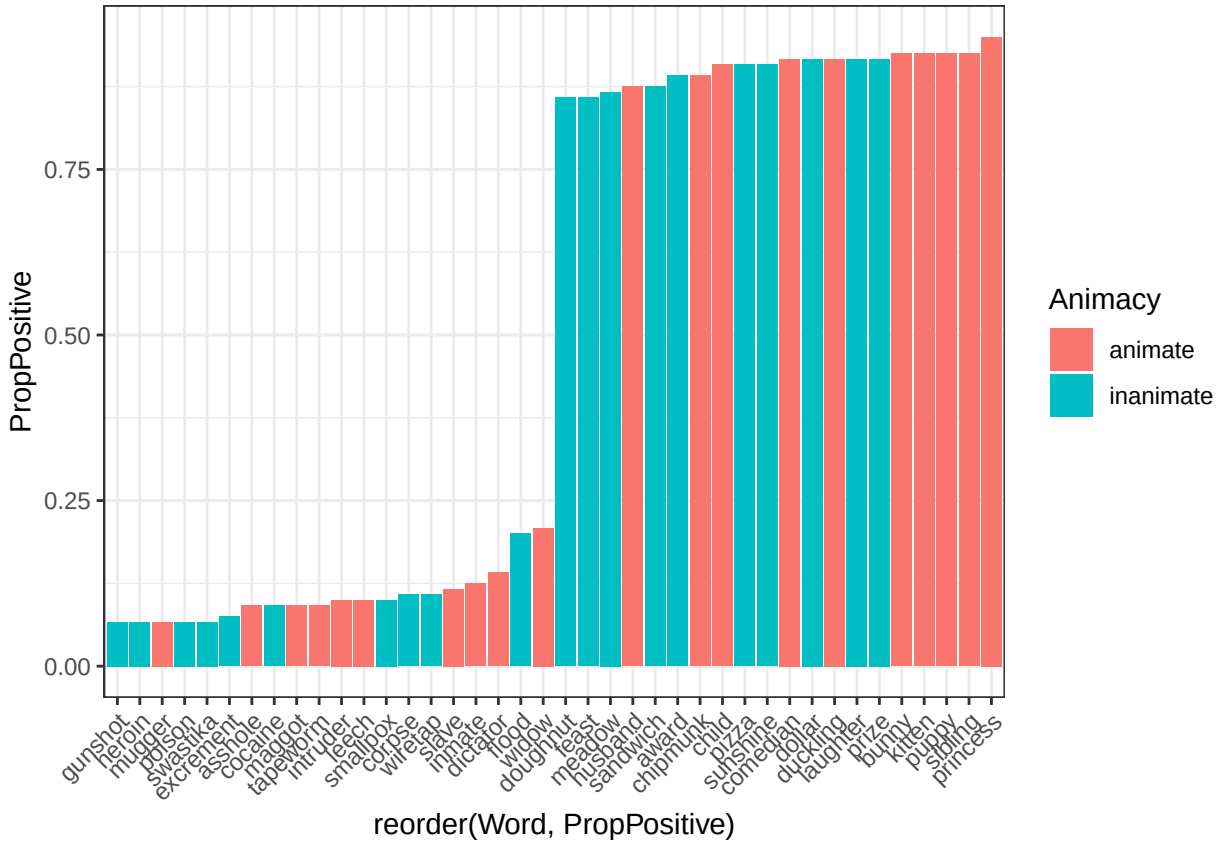
PropPositive and PropAnimate

```
val <- d %>%
  filter(Task == "Valence") %>%
  # filter(Word %in% conc$Word) %>%
  group_by(Word,Animacy) %>%
  mutate(Response.n = as.numeric(factor(Response, levels = c("negative", "positive"))) - 1) %>%  # Conv
  summarize(PropPositive = mean(Response.n))
```

```
## `summarise()` has grouped output by 'Word'. You can override using the
## `.groups` argument.
```

```
  # filter(PropPositive > .1 | PropPositive < .9)

dodge = position_dodge(.9)
ggplot(data=val, aes(x=reorder(Word,PropPositive),y=PropPositive,fill=Animacy)) +
  geom_bar(position=dodge,stat="identity") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```



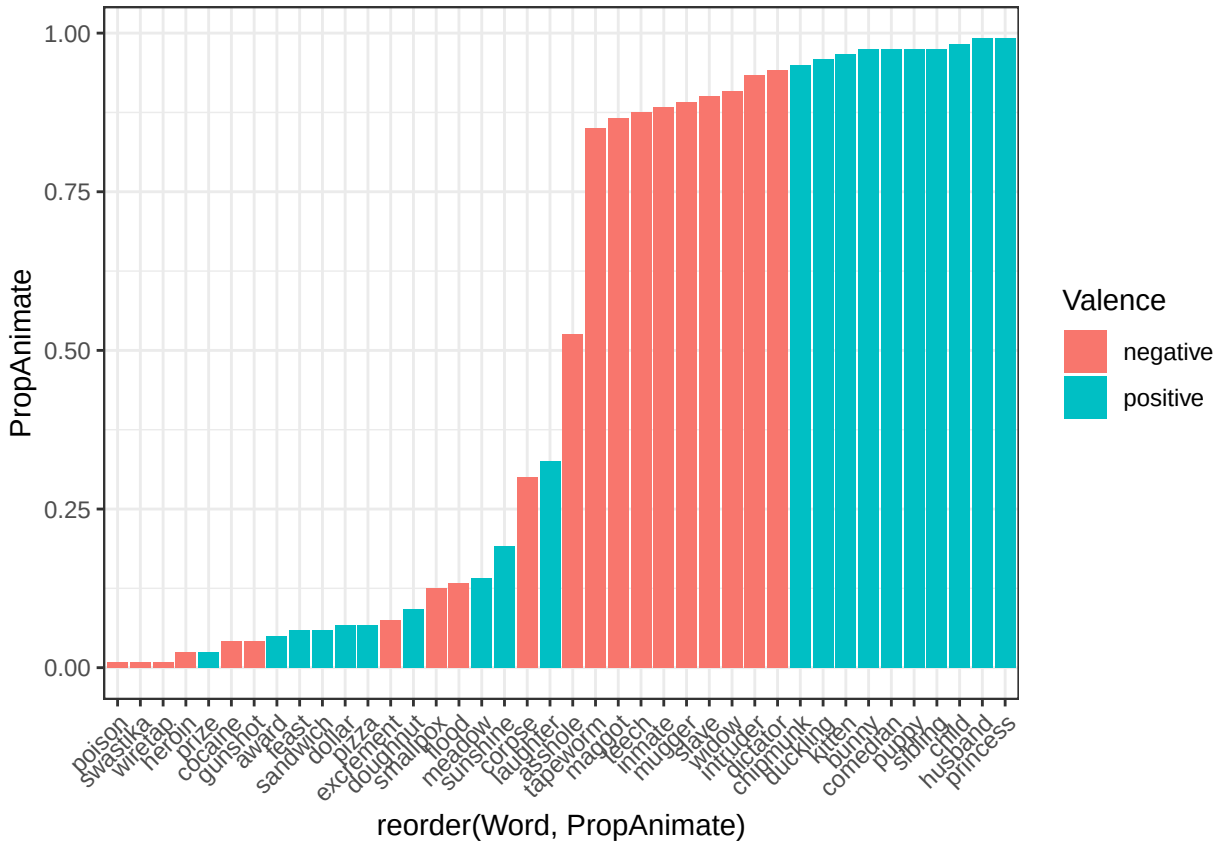

```
  # guides(fill = "none")
```

```
ani <- d %>%
  filter(Task == "Animacy") %>%
  # filter(Word %in% conc$Word) %>%
  group_by(Word,Valence) %>%
  mutate(Response.n = as.numeric(factor(Response, levels = c("inanimate", "animate"))) - 1) %>%  # Conv
  summarize(PropAnimate = mean(Response.n))
```

```
## `summarise()` has grouped output by 'Word'. You can override using the
## `.groups` argument.
```

```
  # filter(PropPositive > .1 | PropPositive < .9)

dodge = position_dodge(.9)
ggplot(data=ani, aes(x=reorder(Word,PropAnimate),y=PropAnimate,fill=Valence)) +
  geom_bar(position=dodge,stat="identity") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```



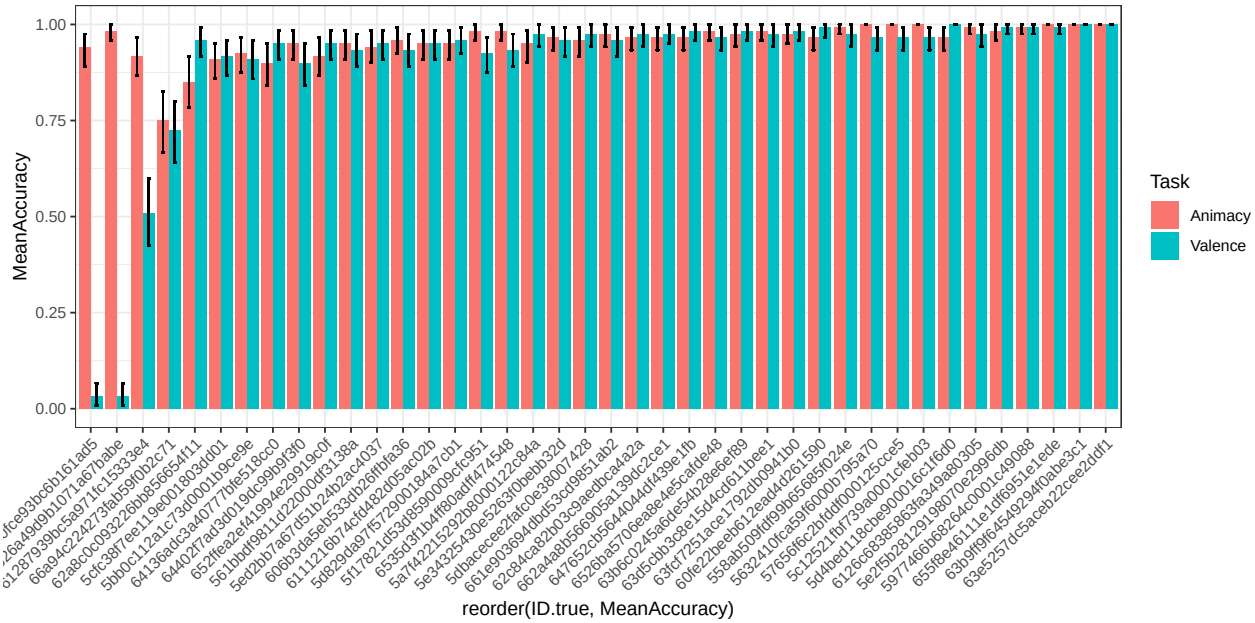

```
  # guides(fill = "none")
```

Accuracy by Participant

```
agr <- d %>%
  # filter(PennElementType == "Selector") %>%
  select(ID.true,Task,Accuracy) %>%
  group_by(ID.true,Task) %>%
  mutate(MeanAccuracy = mean(Accuracy),
          CILow = ci.low(Accuracy),
          CIHigh = ci.high(Accuracy)) %>%
  mutate(YMin = MeanAccuracy - CILow,
         YMax = MeanAccuracy + CIHigh)

dodge = position_dodge(.9)
ggplot(data=agr, aes(x=reorder(ID.true,MeanAccuracy),y=MeanAccuracy,fill=Task)) +
  geom_bar(position=dodge,stat="identity") +
```

```
  geom_errorbar(aes(ymin=YMin,ymax=YMax),width=.25,position=position_dodge(0.9)) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```




```
  # guides(fill = "none")
```

```
agr <- d %>%
  group_by(Task,ConcValCombo) %>%
  summarize(MeanAccuracy = mean(Accuracy), CILow = ci.low(Accuracy), CIHigh = ci.high(Accuracy)) %>%
  mutate(YMin = MeanAccuracy - CILow, YMax = MeanAccuracy + CIHigh)

dodge = position_dodge(.9)
ggplot(data=agr, aes(x=Task,y=MeanAccuracy,fill=ConcValCombo)) +
  geom_bar(position=dodge,stat="identity") +
  # facet_wrap(~Task) +
  geom_errorbar(aes(ymin=YMin,ymax=YMax),width=.25,position=position_dodge(0.9))
  # theme(axis.text.x = element_text(angle = 45, hjust = 1))
  # guides(fill = "none")
```

Removing Inaccurate participants

```
inacc.parts <- d %>%
  group_by(ID.true,Task) %>%
  summarise(MeanAccuracy = mean(Accuracy)) %>%
  filter(MeanAccuracy < .75)
```

```
## `summarise()` has grouped output by 'ID.true'. You can override using the
## `.groups` argument.
```

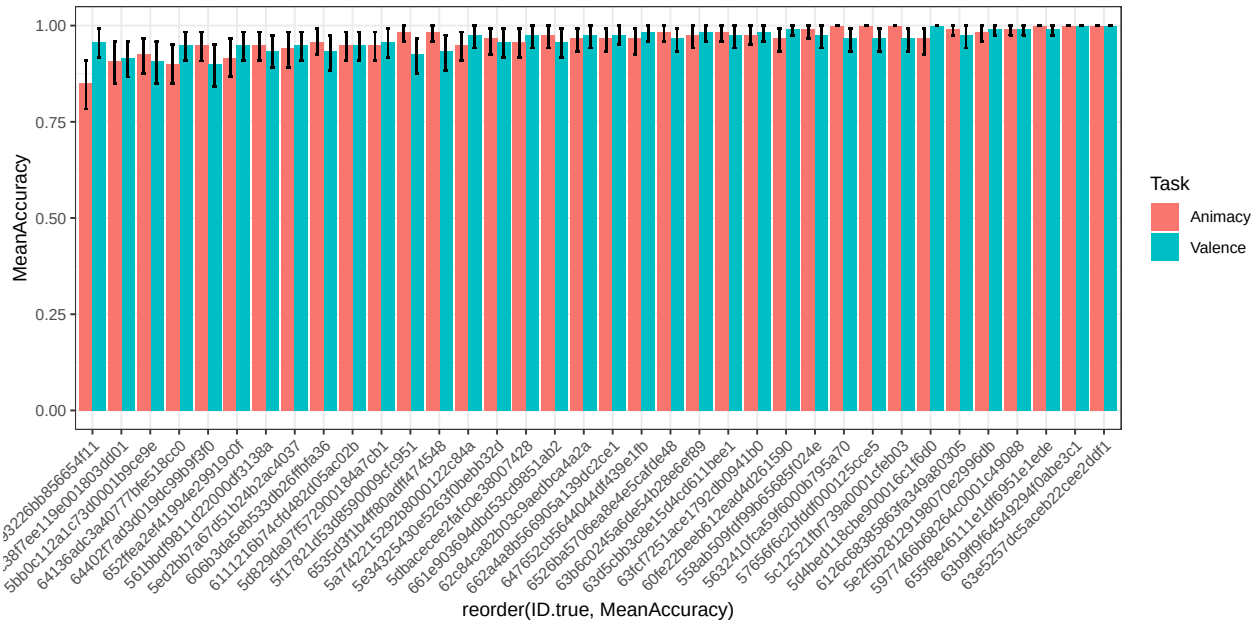
```
# How many participants have Accuracy < .75?
length(unique(inacc.parts$ID.true))
```

```
## [1] 4
```

Accuracy by Participant

```
agr <- d %>%
  # Remove the inaccurate participants
  filter(!ID.true %in% inacc.parts$ID.true) %>%
  select(ID.true,Task,Accuracy) %>%
  group_by(ID.true,Task) %>%
  mutate(MeanAccuracy = mean(Accuracy),
         CILow = ci.low(Accuracy),
         CIHigh = ci.high(Accuracy)) %>%
  mutate(YMin = MeanAccuracy - CILow,
         YMax = MeanAccuracy + CIHigh)

dodge = position_dodge(.9)
ggplot(data=agr, aes(x=reorder(ID.true,MeanAccuracy),y=MeanAccuracy,fill=Task)) +
  geom_bar(position=dodge,stat="identity") +
  geom_errorbar(aes(ymin=YMin,ymax=YMax),width=.25,position=position_dodge(0.9)) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```




```
  # guides(fill = "none")
```

Mean Accuracy by Word / Task

Looking at only the first block

```
agr <- d %>%
  # Remove the inaccurate participants
  filter(!ID.true %in% inacc.parts$ID.true) %>%
  group_by(Task,Word,BlockOrder) %>%
  mutate(MeanAccuracy = mean(Accuracy),
         CILow = ci.low(Accuracy),
         CIHigh = ci.high(Accuracy)) %>%
  mutate(YMin = MeanAccuracy - CILow,
         YMax = MeanAccuracy + CIHigh)
```

```r
agrr <- agr %>%
  group_by(Word,Task) %>%
  select(Word,Task,MeanAccuracy) %>%
  unique()

dodge = position_dodge(.9)
ggplot(data=agr, aes(x=Task,y=MeanAccuracy,fill=BlockOrder)) +
  geom_bar(position=dodge,stat="identity") +
  facet_wrap(~Word,ncol=10) +
  geom_errorbar(aes(ymin=YMin,ymax=YMax),width=.25,position=position_dodge(0.9)) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```