Adjs Soc-Phys Weighted/Normed: Graphs for Accuracy

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What's going on with those parts only in Valence task?

```
table(d$Group, d$Response)
## 
# Step 1: Summarize per ID. Ibex
ids_valence_only <- d %>%
  group_by(ID.true) %>%
  summarise(
   has_valence = any(Task == "Valence"),
   has_socphys = any(Task == "SocPhys"),
    .groups = "drop"
  ) %>%
  filter(has_valence & !has_socphys) %>%
  pull(ID.true)
d bad <- d %>%
  filter(ID.true %in% ids_valence_only)
print(unique(d_bad$Response))
## [1] "negative" "positive"
print(table(d$Response))
##
## negative physical positive
                                social
                                  1060
      1240
                 740
                         1160
table(d$Task,d$Label)
##
##
            test_sp test_val
##
     SocPhys
                1800
     Valence
                         2400
print(unique(d$Word))
## [1] "sunny"
                       "racist"
                                      "brotherly"
                                                     "carefree"
                                                                    "floral"
  [6] "infuriating"
                       "blooming"
                                      "heartbroken"
                                                     "moldy"
                                                                    "fluffy"
## [11] "nutritious"
                       "greedy"
                                      "easygoing"
                                                     "dependable"
                                                                    "nauseous"
## [16] "excruciating" "lifeless"
                                      "comatose"
                                                     "stingy"
                                                                    "joyful"
```

```
## [21] "hateful"
                        "courageous"
                                         "grumpy"
                                                         "obese"
                                                                         "humiliating"
## [26] "decorative"
                        "rancid"
                                         "smelly"
                                                         "seasick"
                                                                         "oceanic"
                                                                         "itchy"
## [31] "witty"
                        "newborn"
                                         "selfless"
                                                         "homemade"
## [36] "dreaded"
                        "radiant"
                                         "cheerful"
                                                         "hilarious"
                                                                         "insulting"
```

Summary Stats

```
agr <- d %>%
  filter(!ID.true %in% ids_valence_only) %>%
  group_by(Task) %>%
  summarize(MeanAccuracy = mean(Accuracy),
            SD = sd(Accuracy)
print(agr)
## # A tibble: 2 x 3
##
     Task
             MeanAccuracy
                              SD
##
     <chr>
                    <dbl> <dbl>
                    0.827 0.379
## 1 SocPhys
## 2 Valence
                    0.939 0.239
d test <- d %>%
  filter(!ID.true %in% ids_valence_only)
print(unique(d$Word))
   [1] "sunny"
                        "racist"
                                        "brotherly"
                                                       "carefree"
                                                                       "floral"
   [6] "infuriating"
                        "blooming"
                                        "heartbroken"
                                                       "moldy"
                                                                       "fluffy"
## [11] "nutritious"
                        "greedy"
                                        "easygoing"
                                                       "dependable"
                                                                       "nauseous"
                                        "comatose"
## [16] "excruciating" "lifeless"
                                                       "stingy"
                                                                       "joyful"
## [21] "hateful"
                        "courageous"
                                        "grumpy"
                                                       "obese"
                                                                       "humiliating"
## [26] "decorative"
                        "rancid"
                                        "smelly"
                                                       "seasick"
                                                                       "oceanic"
## [31] "witty"
                        "newborn"
                                        "selfless"
                                                       "homemade"
                                                                       "itchy"
                        "radiant"
                                        "cheerful"
## [36] "dreaded"
                                                       "hilarious"
                                                                       "insulting"
```

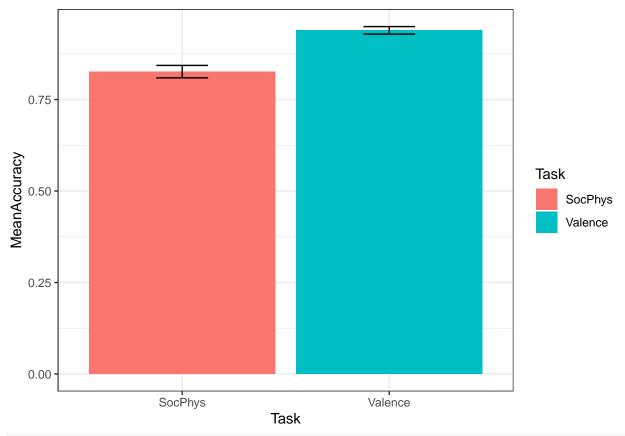
Graph Accuracy by Word

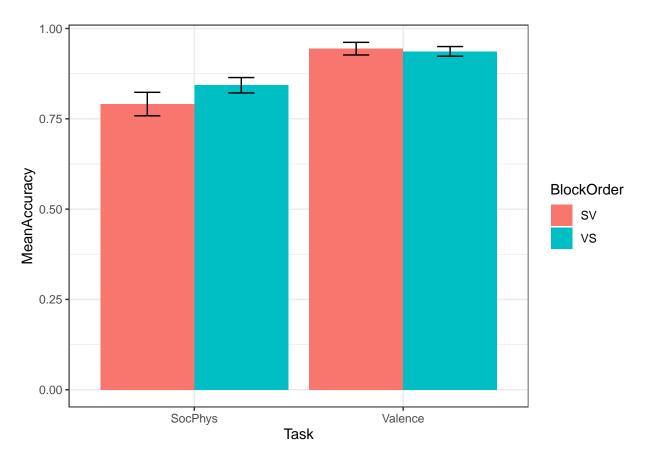
Values for valence/concreteness were gathered/normed first from Warriner et al and Brysbaert et al. From those studies, we can establish what an Accurate response is.

A response is accurate (coded as 1) if the participant response was consistent with the norming study; innacurate (or 0) otherwise.

Overall Accuracy

```
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))
```

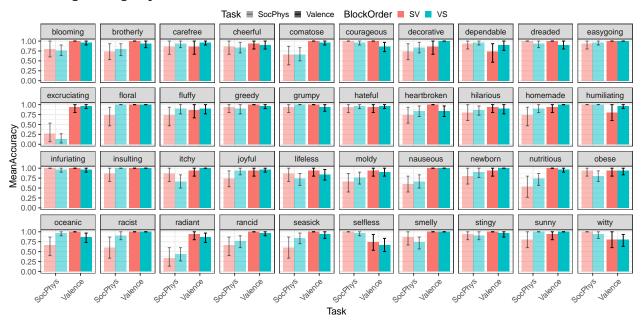




Mean Accuracy by Word / Task

```
agr <- d %>%
  filter(!ID.true %in% ids_valence_only) %>%
  group_by(Word, Task, BlockOrder) %>%
 reframe(MeanAccuracy = mean(Accuracy),
          CILow = ci.low(Accuracy),
          CIHigh = ci.high(Accuracy)) %>%
  mutate(YMin = MeanAccuracy - CILow,
         YMax = MeanAccuracy + CIHigh)
# View(aqr)
# dodge = position_dodge(.9)
# ggplot(data=agr, aes(x=Task,y=MeanAccuracy,fill=BlockOrder,alpha=Task)) +
   geom_bar(position=dodge,stat="identity",alpha = 0.8) +
   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))
ggplot(agr,aes(x=Task, y=MeanAccuracy, alpha=Task, fill=BlockOrder)) +
  geom_bar(position="dodge",stat="identity") +
  geom_errorbar(aes(ymin=YMin,ymax=YMax),width=.25,position=position_dodge(0.9)) +
  facet_wrap(~Word, ncol=10) +
 xlab("Task") +
  ylab("MeanAccuracy") +
  # quides(fill=FALSE) +
```

Warning: Using alpha for a discrete variable is not advised.



Looking at only the first block

```
agr <- d %>%
  filter(!ID.true %in% ids_valence_only) %>%
  group by(Task, Word, BlockOrder) %>%
  filter((Task == "Valence") & (BlockOrder == "VS") |
           (Task == "SocPhys") & (BlockOrder == "SV")) %>%
  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()
# View(d)
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))
                                                                                                                                                                         dependable
                                       brotherly
                                                             carefree
                                                                                   cheerful
                                                                                                                             courageous
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                                       insulting
                                                                                                           lifeless
                                                                                      joyful
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    0.50
    0.25
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                 oceanic
                                         racist
                                                              radiant
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                                                                                                          seasick
                                                                                                                                selfless
                                                                                                                                                       smelly
                                                                                                                                                                             stingy
                                                                                                                                                                                                                           witty
     1.00
    0.75
    0.50
    0.25
    0.00
                                                                                                                       SOCPINS
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: -3273.6
## Scaled residuals:
                                             1Q Median
##
                    Min
                                                                                            3Q
                                                                                                                Max
## -4.0177 -0.4951 -0.0108 0.5413 3.3515
##
## Random effects:
##
           Groups
                                                                        Variance Std.Dev.
                                     Name
                                      (Intercept) 0.004375 0.06615
           Word
                                                                        0.008787 0.09374
        Residual
## Number of obs: 1800, groups: Word, 40
##
## Fixed effects:
##
                                                 Estimate Std. Error
                                                                                                                               df t value Pr(>|t|)
## (Intercept) 7.917e-01 1.114e-02 4.594e+01
                                                                                                                                              71.08
                                                                                                                                                                     <2e-16 ***
## BlockOrderVS 1.450e-01 4.687e-03 1.759e+03
                                                                                                                                             30.94
                                                                                                                                                                     <2e-16 ***
## Signif. codes: 0 '***' 0.001 '**' 0.05 '.' 0.1 ' ' 1
## Correlation of Fixed Effects:
##
                                            (Intr)
## BlockOrdrVS -0.281
```

PropPositive and PropObjective

```
val <- d %>%
  filter(!ID.true %in% ids_valence_only) %>%
  filter(Task == "Valence") %>%
  # filter(Word %in% conc$Word) %>%
  group_by(Word,ConcValCombo) %>%
  mutate(Response.n = as.numeric(factor(Response, levels = c("negative", "positive"))) - 1) %>% # Conv
  summarize(PropPositive = mean(Response.n))
## `summarise()` has grouped output by 'Word'. You can override using the
## `.groups` argument.
  # filter(PropPositive > .1 | PropPositive < .9)</pre>
dodge = position_dodge(.9)
ggplot(data=val, aes(x=reorder(Word,PropPositive),y=PropPositive,fill=ConcValCombo)) +
  geom_bar(position=dodge,stat="identity") +
  theme(axis.text.x = element text(angle = 45, hjust = 1))
  1.00
  0.75
                                                                       ConcValCombo
PropPositive
                                                                            physical-negative
  0.50
                                                                            physical-positive
                                                                            social-negative
                                                                            social-positive
  0.25
  0.00
                        reorder(Word, PropPositive)
  # guides(fill = "none")
conc <- d %>%
  filter(!ID.true %in% ids_valence_only) %>%
  filter(Task == "SocPhys") %>%
  # filter(Word %in% conc$Word) %>%
  group_by(Word,ConcValCombo) %>%
  mutate(Response.n = as.numeric(factor(Response, levels = c("social", "physical"))) - 1) %>% # Conver
```

```
summarize(PropPhysical = mean(Response.n))
## `summarise()` has grouped output by 'Word'. You can override using the
## `.groups` argument.
  # filter(PropPositive > .1 | PropPositive < .9)</pre>
dodge = position_dodge(.9)
ggplot(data=conc, aes(x=reorder(Word,PropPhysical),y=PropPhysical,fill=ConcValCombo)) +
  geom_bar(position=dodge,stat="identity") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
   0.75
                                                                          ConcValCombo
PropPhysical
                                                                               physical-negative
   0.50
                                                                               physical-positive
                                                                               social-negative
                                                                               social-positive
   0.25
   0.00
                         reorder(Word, PropPhysical)
  # guides(fill = "none")
```

Accuracy by Participant

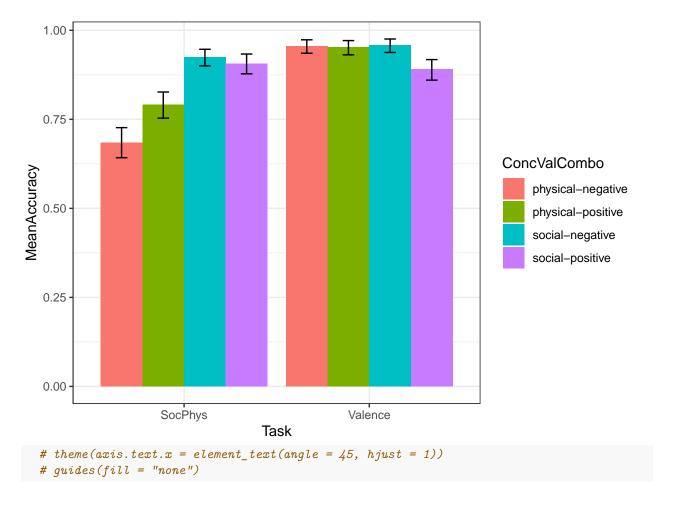
```
dodge = position_dodge(.9)
ggplot(data=agr, aes(x=reorder(ID.true,MeanAccuracy),y=MeanAccuracy,fill=Task)) +
          geom_bar(position=dodge,stat="identity") +
          geom_errorbar(aes(ymin=YMin,ymax=YMax),width=.25,position=position_dodge(0.9)) +
          theme(axis.text.x = element_text(angle = 45, hjust = 1))
            1.00
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                                                                                                                                                                                                                                                                                                                                                                                                                                                               Task
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                                                                                                                                                                                                                                                                                   echeno nages
                                                                                                                                                                                  reorder(ID.true, MeanAccuracy)
          # guides(fill = "none")
```

Mean Accuracy by ConcValCombo

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

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

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))
```



Remove participants who aren't accurate

```
length(unique(d$ID.true))
## [1] 20
inacc.parts <- d %>%
 filter(!ID.true %in% ids_valence_only) %>%
  group_by(ID.true,Task) %>%
  summarise(MeanAccuracy = mean(Accuracy)) %>%
  filter(MeanAccuracy < .75)</pre>
## `summarise()` has grouped output by 'ID.true'. You can override using the
## `.groups` argument.
# How many participants have Accuracy < .75?
length(unique(inacc.parts$ID.true))
## [1] 4
d.inaccurate.removed <- d %>%
  anti_join(inacc.parts, by = "ID.true")
# Sanity check
length(unique(d.inaccurate.removed$ID.true))
```

Accuracy by Participant

```
agr <- d.inaccurate.removed %>%
                 # 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))
                    1.00
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  MeanAccuracy
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```

Mean Accuracy by Word / Task

Looking at only the first block

guides(fill = "none")

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

reorder(ID.true, MeanAccuracy)

```
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))
                 brotherly
                          carefree
                                    cheerful
                                                      courageous
                                                                         dependable
  1.00
  0.75
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  0.00 -
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                                                                                                        BlockOrder
                                                                                                           sv
       infuriating
                 insulting
                                                                                    nutritious
                            itchy
                                                                 nauseous
                                                                           newborn
                                                                                               obese
                                                                                                           VS
  0.50
  0.25
  0.00
                                                                           stingy
                                                        selfless
  1.00
  0.75
  0.50
  0.25
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                                                    SOCPHYS
```