Experiment 1: Main Analyses

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Contents

Setup

Load data and select columns used in model. See data/exp1_data_about.txt for more details.

```
d <- read.csv("../data/exp1_data.csv", stringsAsFactors=TRUE) %>%
  rename("Participant"="SubjID", "Item"="NameShown") %>%
  select(Participant, Condition, GenderRating, Item, He, She, Other)
str(d)
```

```
## 'data.frame':    9564 obs. of  7 variables:
##  $ Participant : Factor w/ 457 levels "R_01wgzz7ygaVl8aJ",..: 278 278 278 278 278 278 278 278 278 278
##  $ Condition   : Factor w/ 3 levels "first","full",..: 1 1 1 1 1 1 1 1 1 ...
##  $ GenderRating: num  1.21 1.24 1.28 2.12 2.41 2.61 3.61 3.75 3.87 4.22 ...
##  $ Item        : Factor w/ 104 levels "Ashley","Ashley Cook",..: 64 11 43 18 95 29 88 71 79 92 ...
##  $ He          : int  1 1 1 1 0 1 1 0 1 1 ...
##  $ She         : int  0 0 0 0 1 0 0 1 0 0 ...
##  $ Other       : int  0 0 0 0 0 0 0 0 0 0 ...
```

Center gender rating for names: Original scale from 1 to 7, with 1 as most masculine and 7 as most feminine. Mean-centered with higher still as more feminine.

```
d %<>% mutate(GenderRatingCentered=scale(d$GenderRating, scale=FALSE))
```

Set contrasts for name conditions.

```
contrasts(d$Condition) = cbind("last vs first/full"=c(.33,.33,-0.66),
                               "first vs full"=c(-.5,.5,0))
contrasts(d$Condition)
```

```
##       last vs first/full first vs full
## first               0.33          -0.5
## full                0.33           0.5
## last               -0.66           0.0
```

Subset for gender rating effects (First and Full conditions only).

```
d.FF <- d %>% filter(Condition!="last")
d.FF$Condition <- droplevels(d.FF$Condition)
contrasts(d.FF$Condition) = cbind("first vs full"=c(-.5,.5)) #add contrast back
contrasts(d.FF$Condition)
```

```
##       first vs full
## first          -0.5
## full            0.5
```

Data Summary

Responses by condition.

```
d %<>% mutate(ResponseAll=case_when(
       He==1 ~ "He",
       She==1 ~ "She",
       Other==1 ~ "Other"))

d.count_responses <- d %>% group_by(Condition, ResponseAll) %>%
  summarise(n=n()) %>%
  pivot_wider(names_from=ResponseAll,
              values_from=n) %>%
  mutate(She_HeOther = She / (He+Other),
         She_He = She / He)

kable(d.count_responses, digits=3, align='c')
```

Condition	He	Other	She	She_HeOther	She_He
first	1572	225	1395	0.776	0.887
full	1514	131	1535	0.933	1.014
last	2616	325	251	0.085	0.096

- First name condition has second-most SHE responses
- Full name condition has most SHE responses
- Last name condition has fewest SHE responses

Model 1: Condition

Effect of Condition (first name, last name, full name) on likelihood of a SHE response, as opposed to a HE or OTHER response. Participant and Item are included as random intercepts, with items defined as the unique first, last and first + last name combinations. Because the condition manipulations were fully between-subject and between-item, fitting a random slope model was not possible.

```
m.cond <- glmer(She ~ Condition + (1|Participant) + (1|Item),
            data=d, family=binomial)
summary(m.cond)
```

```
## Generalized linear mixed model fit by maximum likelihood (Laplace
##   Approximation) [glmerMod]
##  Family: binomial  ( logit )
## Formula: She ~ Condition + (1 | Participant) + (1 | Item)
##    Data: d
##
##      AIC      BIC   logLik deviance df.resid
##   6406.5   6442.3  -3198.2   6396.5     9559
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -8.9619 -0.3029 -0.1438  0.2164 10.0122
##
## Random effects:
##  Groups      Name        Variance Std.Dev.
##  Participant (Intercept) 1.029    1.014
##  Item        (Intercept) 7.234    2.690
## Number of obs: 9564, groups:  Participant, 457; Item, 104
##
## Fixed effects:
##                              Estimate Std. Error z value Pr(>|z|)
## (Intercept)                   -1.4284     0.3076  -4.644 3.42e-06 ***
## Conditionlast vs first/full    2.8241     0.7016   4.026 5.69e-05 ***
## Conditionfirst vs full         0.6197     0.6998   0.886    0.376
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##             (Intr) Cvfrs/
## Cndtnvfrst/ -0.181
## Cndtnfrstvf -0.360 -0.239
```

Fewer SHE responses overall. First+Full have more SHE responses than Last. Full has more SHE responses than First (n.s. but matches ratios).

Model 2: Condition * Name Gender

Effects of Condition (first name, full name) and the first name's Gender Rating (centered, positive=more feminine) on the likelihood of a SHE response, as opposed to a HE or OTHER response. In Experiment 1, the Last Name condition does not include any instances of the gendered first name, so only the First and Full Name conditions are analyzed here. Participant and Item are again included as random intercepts.

```r
m.namegender <- glmer(She ~ Condition * GenderRatingCentered +
            (1|Participant) + (1|Item),
            data=d.FF, family=binomial)
summary(m.namegender)
```

```
## Generalized linear mixed model fit by maximum likelihood (Laplace
##   Approximation) [glmerMod]
##  Family: binomial  ( logit )
## Formula: She ~ Condition * GenderRatingCentered + (1 | Participant) +
##     (1 | Item)
##    Data: d.FF
##
##      AIC      BIC   logLik deviance df.resid
##   4657.4   4698.0  -2322.7   4645.4     6366
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -9.1567 -0.3548 -0.0551  0.3126 14.3200
##
## Random effects:
##  Groups      Name        Variance Std.Dev.
##  Participant (Intercept) 0.889    0.9429
##  Item        (Intercept) 0.501    0.7078
## Number of obs: 6372, groups:  Participant, 305; Item, 83
##
## Fixed effects:
##                                             Estimate Std. Error z value
## (Intercept)                                -0.51325    0.11987  -4.282
## Conditionfirst vs full                      0.53204    0.23993   2.218
## GenderRatingCentered                        1.59330    0.07253  21.967
## Conditionfirst vs full:GenderRatingCentered -0.17492    0.13917  -1.257
##                                             Pr(>|z|)
## (Intercept)                                1.86e-05 ***
## Conditionfirst vs full                       0.0266 *
## GenderRatingCentered                        < 2e-16 ***
## Conditionfirst vs full:GenderRatingCentered   0.2088
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##             (Intr) Cndtvf GndrRC
## Cndtnfrstvf -0.346
## GndrRtngCnt -0.179  0.122
## Cvfll:GndRC  0.111 -0.172 -0.409
```

More SHE responses as first names become more feminine. Difference between First and Full is now significant (as compared to condition-only model).