Contrasts, Plots and Simulation

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Three Topics

1. Contrasts in R
2. Plots
3. Simulation

Contrasts in R

- Estimable functions used in R are encoded by so-called `contrasts`
- Use `getOption("contrasts")` to find which contrasts are used
- Use `options(contrasts = c("<contast_unordered>", "<contrast_ordered")`) to change contrasts

Contrasts and Estimable Functions

► Relationship between contrasts and estimable functions via
contrasts matrix

```
(cm_treat <- contrasts(as.factor(tbl_bwbr$Breed)))
```

```
##           Limousin Simmental
## Angus            0         0
## Limousin         1         0
## Simmental        0         1
```

Estimable Functions

▶ Extend contrast matrix

```
(cm_treat <- cbind(matrix(1,
                   nrow = nrow(cm_treat),
                   ncol = 1),
                 cm_treat))
```

```
##             Limousin Simmental
## Angus     1        0          0
## Limousin  1        1          0
## Simmental 1        0          1
```

Estimable Functions II

▶ Invert extended contrast matrix

```
(em_treat <- solve(cm_treat))
```

```
##           Angus Limousin Simmental
##              1        0         0
## Limousin    -1        1         0
## Simmental   -1        0         1
```