

- First, let's test whether our experimental model and null models differ:

```
> anova(model.clm.null, model.clm4)
```

```
## Likelihood ratio tests of cumulative link models:
##
##          formula:
## model.clm.null ratings ~ 1 + (1 + VideoCondition | Subject) + (1 + VideoCondition | SportType) + (1 +
VideoCondition | Image)
## model.clm4      ratings ~ VideoCondition + (1 + VideoCondition | Subject) + (1 + VideoCondition |
SportType) + (1 + VideoCondition | Image)
##          link: threshold:
## model.clm.null logit flexible
## model.clm4     logit flexible
##
##          no.par   AIC  logLik LR.stat df Pr(>Chisq)
## model.clm.null    28 10841 -5392.6
## model.clm4        30 10837 -5388.4  8.5295  2    0.01406 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

- We can see that they do - and our experimental model has the lower AIC value.

- Let's explore the effect of our Condition factor using *emmeans*:

```
> emmeans(model.clm4, pairwise ~ VideoCondition, adjust = "none")
```

```
## $emmeans
## VideoCondition      emmean      SE    df  asymp.LCL asymp.UCL
## Congruent          0.6084163 0.2597503 Inf   0.0993151 1.1175176
## Incongruent         0.2917028 0.2449736 Inf  -0.1884367 0.7718422
## Neutral             0.3153088 0.2436285 Inf  -0.1621942 0.7928119
##
## Confidence level used: 0.95
##
## $contrasts
## contrast      estimate      SE    df  z.ratio p.value
## Congruent - Incongruent  0.31671360 0.09146945 Inf    3.463  0.0005
## Congruent - Neutral      0.29310751 0.09391144 Inf    3.121  0.0018
## Incongruent - Neutral    -0.02360608 0.08587502 Inf   -0.275  0.7834
```

- The pairwise comparisons tell us that the Congruent condition differs from the Incongruent and Neutral conditions, but that the Incongruent and Neutral conditions do not differ.
- We can conclude that people's ratings for how much they liked particular sports were influenced by whether they had just seen a video depicting the sport. When the video and sport matched, they give the sport a higher rating when when the video and sport mismatched.