

Computer Lab 7: Model Selection

Example 2, lab 3 (logistic regression):

```
bw.yes=c(10,25,12,15,18,12,42,45)
bw.no=c(7,5,22,19,10,12,202,205)
bw=cbind(bw.yes,bw.no)
cardiac=factor(rep(c("yes","no"),each=4))
comps=factor(rep(rep(c("yes","no"),each=2),2))
smoking=factor(rep(c("yes","no"),4))
bw.glm=glm(bw~smoking +comps+cardiac,family=binomial(link=logit))
anova(bw.glm,test="Chisq")
summary(bw.glm)
aic=step.glm(bw.glm,list(upper=~smoking+comps+cardiac))
aic$anova
```

Example, lab 6 (proportional odds models):

```
library(nnet)
library(Mass)
location=factor(rep(c("mw","ne","sw"),12))
preference=factor(rep(c("a","b","c","d","e","f"),each=6))
urban=factor(rep(c("urban","rural"),each=3,length.out=36))
freq=c(20,18,12,30,23,11,15,17,9,22,18,9,12,18,23,21,20,26,17,18,21,17,18,19,
       16,6,19,8,10,17,28,25,30,12,15,24)
olive.data=data.frame(urban,location,preference,freq)
olive.plr=polr(preference~location+urban,data=olive.data,weight=freq)
summary(olive.plr)
aic=stepAIC(olive.plr)
aic$anova
```