CatData HW5

Matthew Vanaman

03-27-2019

3.19, 3,20, 3,21, 3.22

3.19

(a)

Confirm the sizes of the deviances:

```
TrainCollisions ~ 1
```

```
[1] 35.11981
```

```
TrainCollisions ~ Year
```

```
[1] 23.51796
```

Get the difference in deviances and residual df between the models:

```
mod_intercept_only$deviance - mod_with_time$deviance
```

```
[1] 11.60185
```

```
mod_intercept_only$df.residual - mod_with_time$df.residual
```

```
[1] 1
```

The deviance approximates a chi-squared distribution when samples are large. Get the p-value for $\Delta\chi^2$:

```
pchisq(11.60185, df=1, lower.tail = FALSE)
```

```
[1] 0.0006588625
```

(b)

```
# get the chi-squared, or $$z^2$$
(-0.0337/ 0.0130)^2
```

```
[1] 6.720059
```