Loglinear Counts in Contingency Tables

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Review

- What is L_0 and L_1 in the context of testing $\beta = 0$?
- In the definition of deviance, what is L_S and L_M?
- What are residual and null deviance in GLM model output?
- How can deviance be used to compare two models? What must be true about them for the comparison to be valid?

Happy Heaven

	Heaven	
Happy	no	yes
not	32	190
pretty	113	611
very	51	326

Saturated Models

```
1 glm(formula = count ~ happy + heaven, family = poisson, data =
      heaven)
2
3 Coefficients:
4            Estimate Std. Error z value       Pr(>|z|)
5 (Intercept)  3.4931     0.0941   37.13 < 0.000000000002
6 happypretty  1.1821     0.0767   15.41 < 0.000000000002
7 happyvery    0.5296     0.0846    6.26        0.0000039
8 heavenyes    1.7492     0.0774   22.60 < 0.000000000002
9
10 (Dispersion parameter for poisson family taken to be 1)
11
12     Null deviance: 1019.87238  on 5  degrees of freedom
13 Residual deviance:    0.89111  on 2  degrees of freedom
14 AIC: 49.5
15
16 Number of Fisher Scoring iterations: 3
```