The lenswear data

April 6, 2011

The data:

```
female contacts 121
female glasses 32
female none 129
male contacts 42
male glasses 37
male none 85
```

The SAS code and output:

```
data lens;
infile "lenswear.dat";
input sex $ lenswear $ frequency;

proc catmod;
weight frequency;
model sex*lenswear=_response_;
loglin sex lenswear sex*lenswear;

proc catmod;
  weight frequency;
  model sex*lenswear=_response_;
  loglin sex lenswear;
```

```
The CATMOD Procedure
                Data Summary
```

```
Response            sex*lenswear      Response Levels    6
Weight Variable     frequency         Populations        1
Data Set            LENS              Total Frequency  446
Frequency Missing   0                 Observations       6

 Population Profiles
Sample    Sample Size
--------------------
    1             446


      Response Profiles
Response    sex        lenswear
-----------------------------
    1       female     contacts
    2       female     glasses
    3       female     none
    4       male       contacts
    5       male       glasses
    6       male       none


              Maximum Likelihood Analysis
          Maximum likelihood computations converged.


     Maximum Likelihood Analysis of Variance
Source              DF   Chi-Square   Pr > ChiSq
------------------------------------------------
sex                  1      16.10       <.0001
lenswear             2      64.63       <.0001
sex*lenswear         2      17.16       0.0002
Likelihood Ratio     0        .           .


           Analysis of Maximum Likelihood Estimates
                                      Standard      Chi-
Parameter                   Estimate    Error     Square   Pr > ChiSq
---------------------------------------------------------------------
sex          female           0.2217   0.0552     16.10      <.0001
lenswear     contacts         0.1146   0.0757      2.30      0.1298
             glasses         -0.6138   0.0889     47.64      <.0001
sex*lenswear female contacts  0.3074   0.0757     16.50      <.0001
             female glasses  -0.2943   0.0889     10.95      0.0009


The CATMOD Procedure
                   Data Summary
Response            sex*lenswear      Response Levels    6
Weight Variable     frequency         Populations        1
Data Set            LENS              Total Frequency  446
```

```
Frequency Missing  0                    Observations       6

 Population Profiles
Sample     Sample Size
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    1             446

      Response Profiles
Response    sex       lenswear
-----------------------------
    1      female    contacts
    2      female    glasses
    3      female    none
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    5      male      glasses
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            Maximum Likelihood Analysis
         Maximum likelihood computations converged.

     Maximum Likelihood Analysis of Variance
Source           DF  Chi-Square    Pr > ChiSq
--------------------------------------------------
sex               1      30.47        <.0001
lenswear          2      66.85        <.0001
Likelihood Ratio  2      17.83        0.0001

         Analysis of Maximum Likelihood Estimates
                            Standard        Chi-
Parameter          Estimate    Error      Square    Pr > ChiSq
---------------------------------------------------------------
sex      female      0.2710    0.0491      30.47       <.0001
lenswear contacts    0.1958    0.0697       7.90       0.0050
         glasses    -0.6638    0.0874      57.67       <.0001
```

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