G^2 is a likelihood-ratio chi-square test for a frequency table. If your model has, for example, 5 binary variables, you have 2^5 = 32 cells in the frequency table. An unrestricted (perfectly fitting) H1 model for such a table has 31 parameters corresponding to the 32-1 probabilities (1 is subtracted off because the probabilities have to sum to one). You can then test your restricted H0 model by comparing it to the unrestricted model using the G^2test which computes 2 times the difference in the loglikelihood values for your model and the unrestricted model.

An alternative to the G^2 test is the Pearson chi-square test. It typically agrees well with the G^2 test but not when there are many cells with small frequencies in which case neither test should be trusted. The two tests are therefore not useful when there are many categorical variables which gives rise to many cells. When the G^2 test cannot be used due to many small-frequency cells, it is still possible to compare two restricted models using a likelihood-ratio chi-square test. This is again done by computing 2 times the difference in the loglikelihood values for the two models.

The Deviance is computed as 2 times the difference between the loglikelihood for the unrestricted model and the restricted model. To compare two restricted models, the difference in their deviances gives a chi-square test.

Mplus uses this common definition of AIC,

AIC = - 2*loglikelihood + 2*r,

where r is the number of parameters in the model. The definition of BIC is

BIC = - 2*loglikelihood + r*ln N,

where N is the sample size.