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Log-linear models can be employed to analyze an incomplete contingency table where categorical variables are subject to nonresponse. A challenging problem is that the use of log-linear models requires explicit specification of nonresponse mechanism that is empirically unverifiable from the observed data. In this paper we propose a novel data analytic approach to aid in distinguishing between plausible nonignorable nonresponse log-linear models for an incomplete two-way contingency table. The proposed method involves the computation of a set of response odds and nonresponse odds that can be easily obtained from observed counts. These odds can be used as an aid to selecting one or more suitable nonresponse log-linear models for observed data. We illustrate the performance of the proposed method with simulation and two public health data sets.