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**Hisayuki Hara**, Department of Technology Management for Innov, University of Tokyo, Tokyo, Japan, **Akimichi Takemura**, Graduate School of Information Science and Te, University of Tokyo, Tokyo, Japan, and **Ruriko Yoshida\*** ([ruriko.yoshida@uky.edu](mailto:ruriko.yoshida@uky.edu)), 805A Patterson Office Tower, University of Kentucky, Lexington, KY 40506. *On connectivity of fibers with positive marginals in multiple logistic regression.*

We study Markov bases for conducting exact tests of a multiple logistic regression, where the levels of covariates are equally spaced. In usual application of multiple logistic regression, the sample size is positive for each combination of levels of the covariates. In this case we do not need a whole Markov basis, which guarantees connectivity of all fibers. We first give an explicit Markov basis for multiple Poisson regression. By the Lawrence lifting of this basis, in the case of bivariate logistic regression, we give a simple subset of the Markov basis which connects all fibers with a positive sample size for each combination of levels of covariates. (Received January 26, 2009)