1033-05-34 **Hisayuki Hara** (hara@geosys.t.u-tokyo.ac.jp), Department of Geosystem Engineering, Graduate School of Engineering, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan, **Akimichi Takemura** (takemura@stat.t.u-tokyo.ac.jp), Department of Mathematical Informatics, Bunkyo-ku, Tokyo 113-0033, Japan, and **Ruriko Yoshida*** (ruriko@ms.uky.edu), Department of Statistics, University of Kentucky, 805A Patterson Office Tower, Lexington, KY 40506. *Markov Bases for Two-way Subtable Sum Problems.* Preliminary report.

It has been well-known that for two-way contingency tables with fixed row sums and column sums the set of square-free moves of degree two forms a Markov basis. However when we impose an additional constraint that the sum of a subtable is also fixed, then these moves do not necessarily form a Markov basis. Thus, in this talk, we show a necessary and sufficient condition on a subtable so that the set of square-free moves of degree two forms a Markov basis.

The results here may give some insights into Markov bases for statistical models for general multi-way tables with various patterns of statistical interaction effects.

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