A note on "shaved dice" inference

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Abstract

Two dice are rolled repeatedly, but only their sum is registered. Have the two dice been "shaved", so two of the six sides appear more frequently? Pavlides & Perlman (2010) discuss this somewhat complicated type of situation through curved exponential families. Here we contrast their approach by regarding data as incomplete data from a simple exponential family. The latter, supplementary approach is in some respects simpler, it provides additional insight about likelihood equation and Fisher information, it opens up for the EM algorithm, and it elucidates the information content in ancillary statistics.

Key words: aggregated cells, ancillarity, curved exponential families, EM algorithm, Fisher information, incomplete data model, ML estimation, multinomial model

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