

APPROXIMATING EXPONENTIAL MODELS*

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Abstract. Approximation of parametric statistical models by exponential models is discussed, from the viewpoints of observed as well as of expected likelihood geometry. This extends a construction, in expected geometry, due to Amari. The approximations considered are parametrization invariant and local. Some of them relate to conditional models given exact or approximate ancillary statistics. Various examples are considered and the relation between the maximum likelihood estimators of the original model and the approximating models is studied.

Key words and phrases: Expected likelihood geometry, observed likelihood geometry, vector bundles, conditional inference, maximum likelihood estimation.