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Bernd Sturmfels* (bernd@math.berkeley.edu), Department of Mathematics, University of California, Berkeley, CA 94720, and **Poitr Zwiernik**. *Binary Cumulant Varieties*.

Algebraic statistics for binary random variables is concerned with highly structured algebraic varieties in the space of $2 \times 2 \times \dots \times 2$ tensors. We demonstrate the advantages of representing such varieties in the coordinate system of binary cumulants. Our primary focus lies on hidden subset models. Parametrizations and implicit equations in cumulants are derived for hyperdeterminants, for secant and tangential varieties of Segre varieties, and for certain context-specific independence models. (Received June 21, 2011)