

1014-62-1712 **Seth Sullivan*** (seths@math.harvard.edu), Department of Mathematics, Harvard University,
One Oxford Street, Cambridge, MA 02138. *Introduction to Algebraic Statistics*.

The emerging field of algebraic statistics advocates the use of polynomial algebra as a tool for statistical inference. The core principle in algebraic statistics is that most statistical models for discrete random variables are algebraic varieties (the zero sets of polynomials) and that understanding the structure of these varieties and their defining ideals can be useful in statistics. In this introductory talk, I will try to illustrate this point with the example of two-independent random variables. I will explain how computational algebraic geometry plays a role in computing p-values in conditional inference, maximum likelihood estimation, statistical disclosure limitation, and the study of mixtures of independent random variables. (Received September 28, 2005)