Building Models with Bayes GUS HART, LANCE J. NELSON, SHANE REESE, Brigham Young University — The whole of modern Bayesian statistical methods is founded on the simple idea of Bayes rule, stated by the Reverend Thomas Bayes, and presented in 1763. Bayes rule is merely a simple statement of conditional probablility but can be used to make strong inferences. However, the application of Bayes rule to all but the simplest problems requires significant computation. As a result, Baysian-based approaches have been largely impractical until high-speed computing became inexpensive in the recent in the last 20 years or so. We discuss the general idea behind Bayes rule, how to use it to build physical models, and illustrate the approach for a simple case of lattice gas models.

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