Real: Gelman et al. (GCMK) ch. 1; ANR206 4 Jan 11

(a) web page: talk on history of statistics; (c) early draft of my book ch. 1; (d) later draft ch. 2, appendix 1-2 (e) talk on theory of applied statistics

4-4.50 I
4.50-4.55 break
4.55-5.45 II

\[ p(\text{effect | cause}) \]

\[ p(\text{cause | effect}) \]

\[ p(y | \theta) \] sampling distribution for \( y \) (future data)

\[ \text{given } \theta \] (c20)

\[ \mathcal{L}(\theta | y) = \frac{p(y | \theta)}{p(y)} \]

function of \( \theta \) for fixed \( y \)
\[(\gamma; \theta) \sim \text{Bernoulli}(\theta)\]

\[
P(/\gamma_i = 1 | \theta) = \theta
\]

\[
P(/\gamma_i = 0 | \theta) = 1 - \theta
\]

\[
P(/\gamma | \theta) = P(/\gamma_1, ... /\gamma_n | \theta)
\]

\[
= \prod_{i=1}^{n} P(/\gamma_i = \gamma; \theta)
\]

\[
P(/\gamma | \theta) = \prod_{i=1}^{n} \theta^{y_i} (1 - \theta)^{1 - y_i}
\]

\[
S = \sum_{i=1}^{n} \gamma_i
\]

\[
= \theta^{S} (1 - \theta)^{n - S}
\]

\[
\text{ind}
\]