Bayes Risk Lower Bounds

- Intuitively, if $I(\mathscr{P}, w)$ is small, then Bayes risk should be close to Null risk

$$\text{Bayes Risk} \geq 1 + \frac{I(\mathscr{P}, w) + \log(1 + R_0)}{\log(1 - R_0)}$$

- If $R_0 \approx 1$ and $I(\mathscr{P}, w)$ is small, then Bayes Risk ≈ 1

Mapping to Our Problem