Consider tossing a coin with

$$p(H) = \gamma \quad \text{and} \quad p(T) = 1 - \gamma.$$

Then $h_b(\gamma)$ measures the amount of uncertainty in the outcome of the toss.

- When $\gamma = 0$ or 1, the coin is *deterministic* and $h_b(\gamma) = 0$. This is consistent with our intuition because for such cases we need 0 bits to convey the outcome.

- When $\gamma = 0.5$, the coin is *fair* and $h_b(\gamma) = 1$. This is consistent with our intuition because we need 1 bit to convey the outcome.

- When $\gamma \notin \{0, 0.5, 1\}$, $0 < h_b(\gamma) < 1$, i.e., the uncertainty about the outcome is somewhere between 0 and 1 bit.

- This interpretation will be justified in terms of the source coding theorem.