

Information Gain

$$\text{information gain} = \text{entropy (parent)} - \left[\text{weighted average} \right] \text{entropy (children)}$$

| grade | bumpiness | speed kmit | speed |
|-------|-----------|---------------|-------|
| steep | bumpy | yes | slow |
| steep | smooth | yes | slow |
| flat | bumpy | no | fast |
| steep | smooth | no | fast |

entropy of parent = 1.0

$$\text{entropy} = \sum_i -P_i \log_2 P_i$$

entropy (bumpy) = 1.0

entropy (flat)

