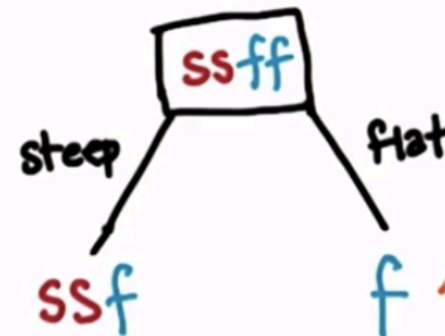


Information Gain

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

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

entropy of parent = 1.0



$P_{\text{slow}} = 2/3$

P_{fast}

entropy of this node? 0

1/3