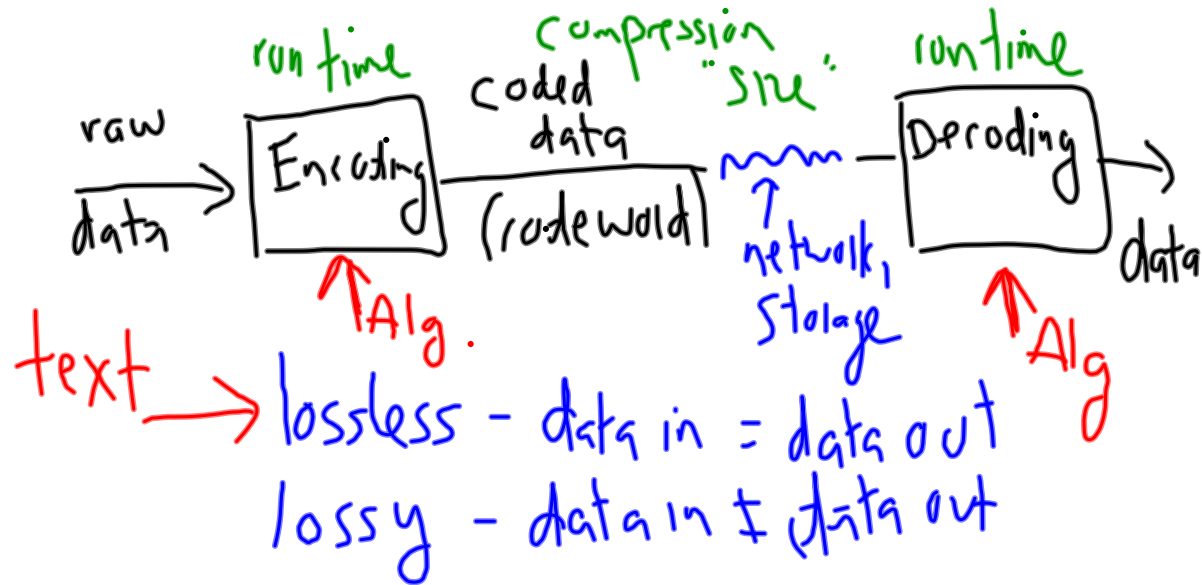
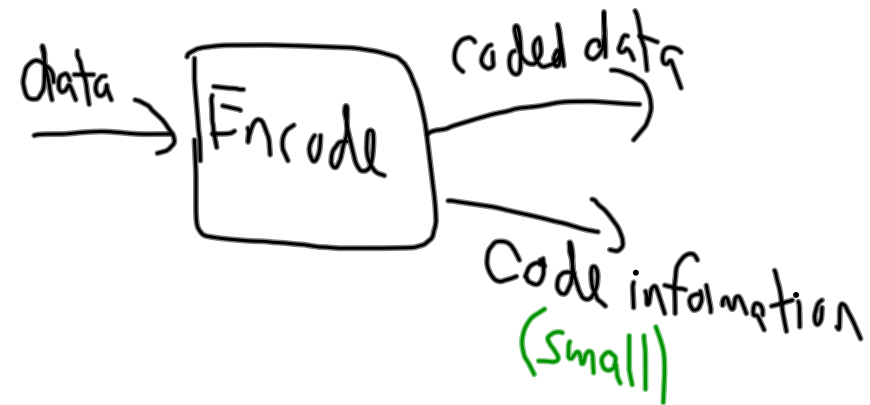


# Huffman Codes

coding  $\rightarrow$  compression

- data on media e.g. CD, ...
- send data thru internet





English

E, T, A, S, I, O, . . .

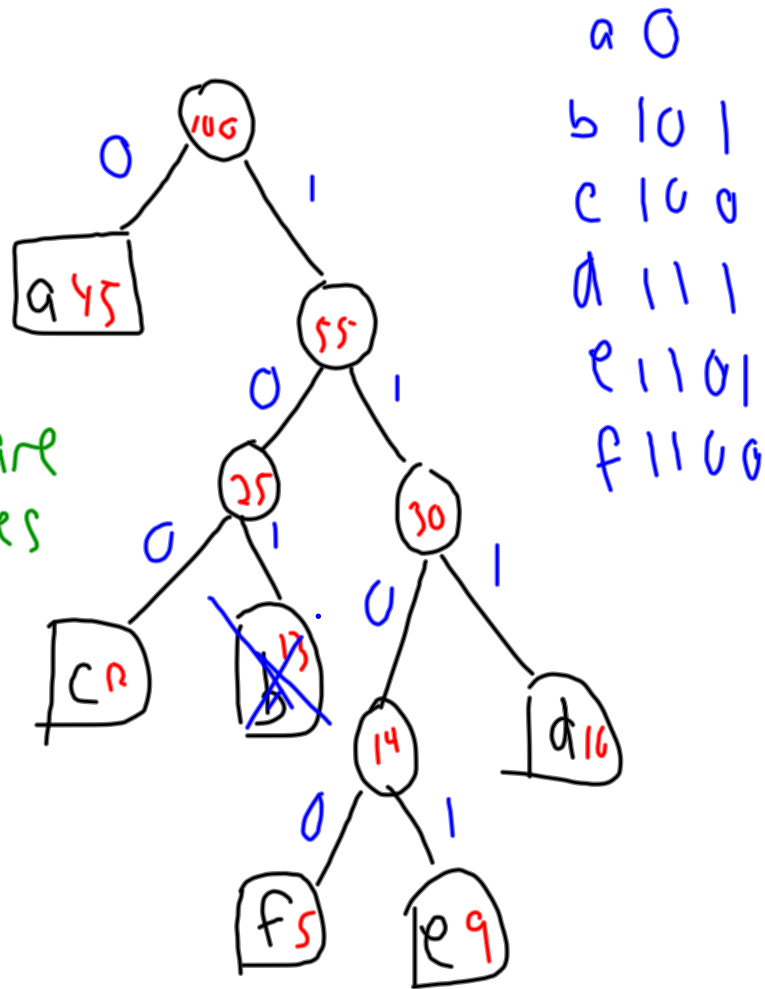
a o

b i

c oo

d oi

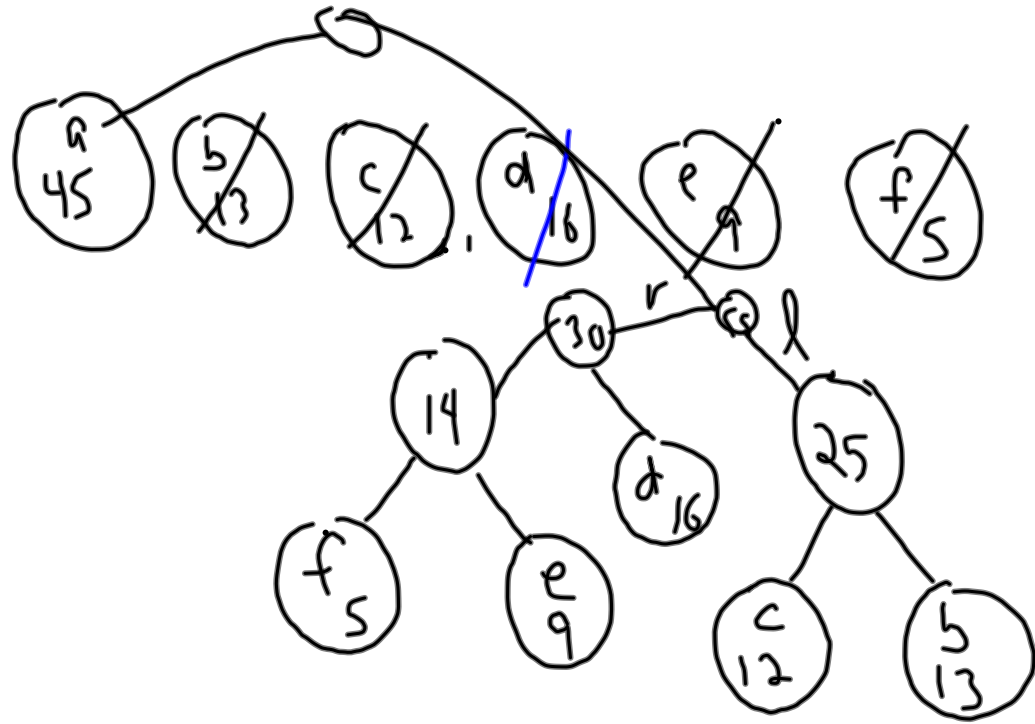
o o o o o o o o



- chars are at leaves

- path gives code

Prefix free codes on  $S \equiv$  binary trees w/ leaves labelled by  $S$



Huffman coding is the optimal  
code (best compression) among  
codes to encode each  
char<sub>i</sub> as an integral # of bits.  
indiv.