

h ulm um ulm  
und um ulm  
heram  
 ---

|   |   |   |
|---|---|---|
| h |   | 1 |
| n |   | 2 |
| u |   | 3 |
| l |   | 3 |
| m | 1 | 6 |
| u |   | 4 |
| d |   | 1 |
| h |   | 1 |
| e |   | 1 |
| r |   | 1 |

3.1

Shannon

$a_1 = m, p_1 = 0,26087, \pi_1 = 0$

$a_2 = u, p_2 = 0,17391, \pi_2 = 0,26087$

$a_3 = l, p_3 = 0,13043, \pi_3 = \pi_2 + p_2 = 0,43478$

$a_4 = d, p_4 = 0,13043, \pi_4 = \pi_3 + p_3 = 0,56521$

$\lceil -\log_2 p_i \rceil$

$l_1 = 2$

$l_2 = 3$

$l_3 = 3$

$l_4 = 3$

$\pi_i$  in Dualzahl:

|     |                |       |
|-----|----------------|-------|
| $i$ | $\pi_i$ (dual) | $l_i$ |
| 1   | 0,00 00000     | 2     |
| 2   | 0,010 0001     | 3     |
| 3   | 0,011 0111     | 3     |
| ⋮   |                |       |
| 10  | 0,11110 10     | 5     |

$\rightarrow K(m) = 00$

$K(u) = 010$

$K(l) = 011$

⋮

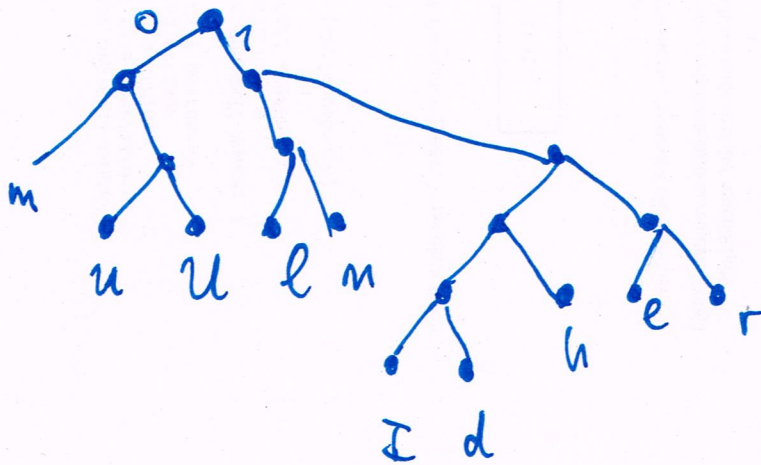
$K(d) = 11110$

# Shannon-Fano

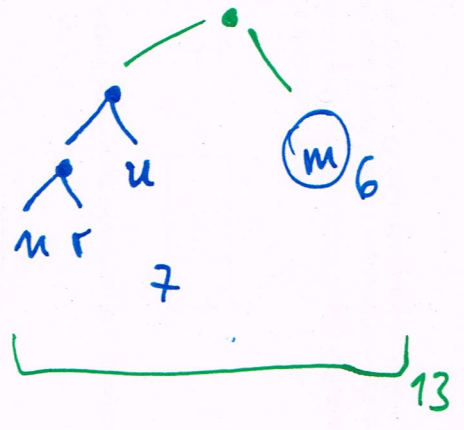
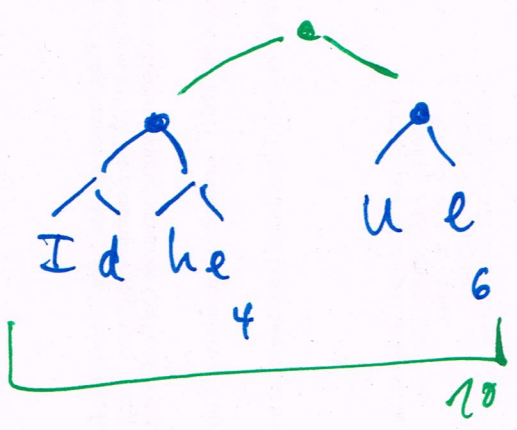
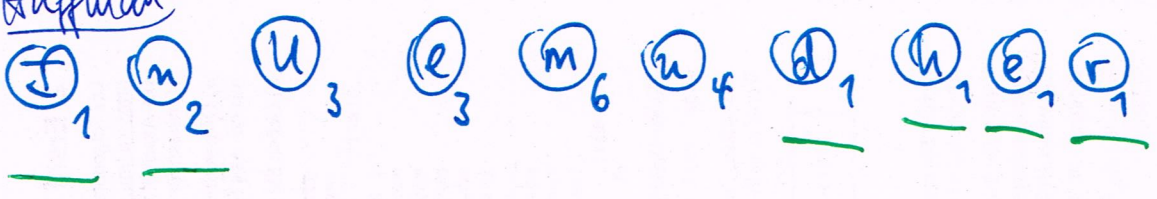
20.10.18 (2)

|    |   |   |   |   |   |    |   |   |   |               |
|----|---|---|---|---|---|----|---|---|---|---------------|
| 6  | 4 | 3 | 3 | 2 | 1 | 1  | 1 | 1 | 1 | $\Sigma = 23$ |
| m  | u | U | l | n | I | d  | h | e | r |               |
| 13 | 0 | 1 |   |   |   | 10 |   |   |   |               |
| 60 | 7 | 1 | 5 |   |   | 5  |   |   |   |               |
| 4  | 0 | 3 | 1 | 3 | 2 | 3  |   | 2 |   |               |
|    |   |   |   | 2 | 1 | 1  | 1 | 1 |   |               |
|    |   |   |   | 1 | 1 |    |   |   |   |               |

0  
0



Huffman



Nestliche Lösungen: → Moodle