Information Theory
Problem Set 8

Consider a source $S = \{a, b, c\}$ with encoding $a \mapsto 0$ $b \mapsto 10$ and $c \mapsto 11$. Consider the source text

$$aababcaabcaaabcabaaabcaabaabcaaaababcababb$$

1. Apply the LZ-77 algorithm with history window of length 16 and lookahead of length 8. Explain why we should use matches only if they have length at least 3. Encode the source text. Then decode it.
2. Apply the LZ-78 algorithm. Encode the source text, show the dictionary and the trie obtained. Decode the result.
3. Apply the LZW variant of LZ-78. Encode the source text, show the dictionary and the trie obtained. Decode the result.

You might also look at these:

Hankerson Chapter 9 §1 # 1,2.
Hankerson Chapter 9 §2 # 1,2,3.