Longest Common Subsequence

Given two strings a, b; find the longest common subsequence.
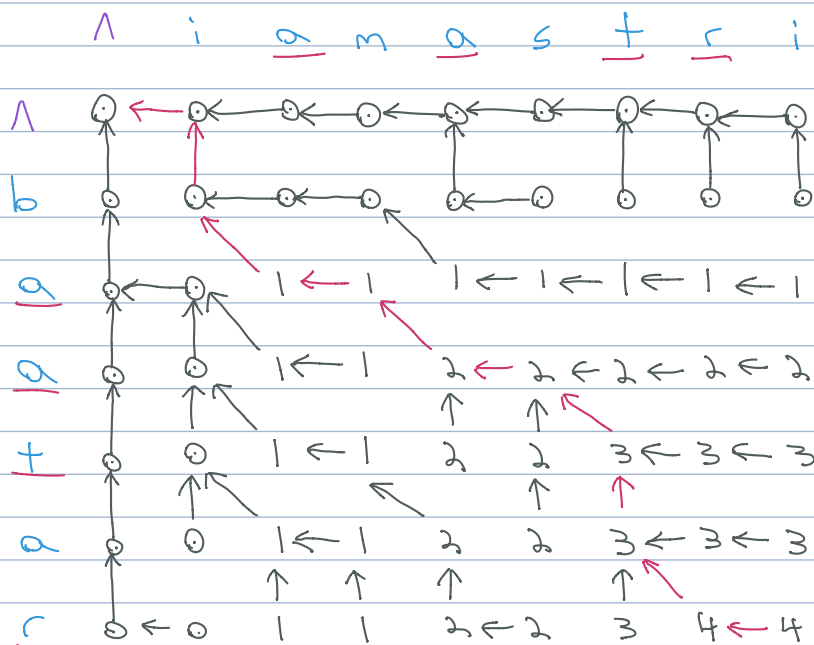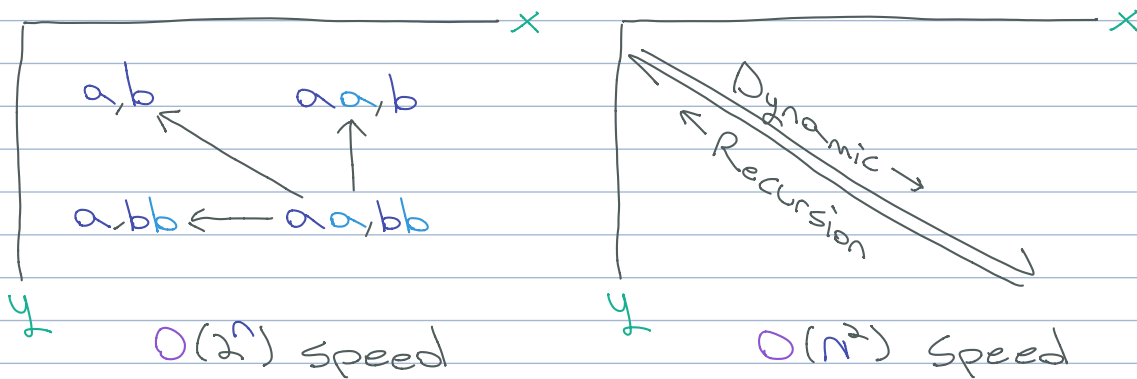
Eg:

a: abbabcba
b: babbabc

bba is a common subsequence.

The LCS Algrothim:

1. $LCS(a, \Lambda) = \Lambda$
2. $LCS(\Lambda, b) = \Lambda$
3. $LCS(aa, ba) = LCS(a, b)\,a$
4. $LCS(aa, bb)$ where $a \neq b = \max\{LCS(a, bb), LCS(aa, b)\}$

Visualized:

$O(2^n)$ speed

$O(n^2)$ speed

LCS = "aatr"

Found by concatenation of the diagonals