

LCS =

if  $s1[idx1] == s2[idx2]$ :

$$dp[i][j] = 1 + dp[i-1][j-1]$$

else:

$$split-1 = 0 + dp[i-1][j]$$

$$split-2 = 0 + dp[i][j-1]$$

$$dp[i][j] = \max(split-1, split-2)$$

### Shortest Common Supersequence

Str1 = a b a c

Str2 = c a b

	0	1	2	3
0	0	0	0	0
1	0	0	1	1
2	0	0	1	2
3	0	0	1	2 <sup>i-1</sup>
4	0	1	1 <sup>j-1</sup>	2

→ Length of Shortest Common Supersequence

$$= LCS = 2$$

$$= m = 4, n = 3$$

$$\rightarrow m - 2 = 2 \text{ (remaining)} \\ n - 2 = 1 \text{ (sequence)}$$

$$= m + n + LCS = \underline{5}$$

or

$$m = 4$$

$$n = 3$$

$$LCS = 2$$

$$\text{Length} = (4 + 3) - 2 = 5$$

if  $s1[i-1] == s2[j-1]$ :

$$seq = s1[i-1]$$

$$i -= 1$$

$$j -= 1$$

else:

if  $dp[i-1][j] > dp[i][j-1]$

$$seq = s1[i-1]$$

$$i -= 1$$

else:  $seq = s2[j-1]$

$$j -= 1$$



		c	a	b		
		0	1	2	3	
a	0	0	0	0	0	c
a	1	0	0	1	1	a
b	2	0	0	1	2	b
a	3	0	0	1	$2^{i-1}$	a
c	4	0	1	$1^{j-1}$	2	c

= cabac