1.

LZ77

S = a | l | a b | a r | a l a l | a b a r d | a

<0,0,a> <0,0,l> <2,1,b> <2,1,r> <6,3,l>
<8,4,d> <3,1,EOF>

LZSS

OUTPUT EITHER <DISTANCE, LENGTH> OR <0, CHAR>

SIMPLE TRANSF. FROM LZ77:
<0,a> <0,l> <2,1> <0,b> <2,1> <0,r> <6,3> <0,l>
<8,4> <0,d> <3,1> <0,EOF>

LZSS W. LONGER MATCHES:
<0,a> <0,l> <2,2> <0,b> <0,a> <0,r> <6,3> <8,5> <0,d> <0,a>

LZ77 WINDOW SIZE 4

S = a | l | a b | a r | a l | a l a b | a r | d | a

<0,0,a> <0,0,l> <2,1,b> <2,1,r> <2,1,l>
<2,3,b> <2,1,r> <0,0,d> <3,1,EOF>

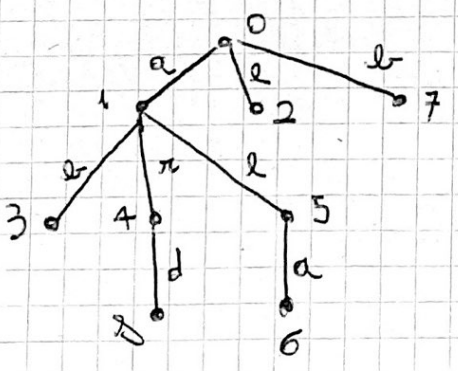
(<2,1,l>: BECAUSE OF THE WINDOW)

(<2,3,b>: OVERLAP)

LZ78

S = a | l | a b | a r | a l | a l a | b | a r d | a

DICT:



OUTPUT

<0,a> <0,l> <1,b>
<1,r> <1,l> <5,a>
<0,b> <4,d> <1,EOF>

(2) LZ77

S = c | a | π | b | a π b a π a | b c |

<0, 0, c> <0, 0, a> <0, 0, π> <0, 0, b>

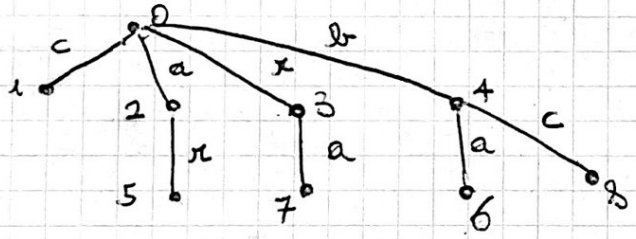
<3, 5, d> <4, 1, c> <0, 0, EOF>

↓
OVERLAP

LZ78

S = c | a | π | b | a π | b a | π a | b c |

DICT:



OUTPUT

<0, c> <0, a> <0, π>

<0, b> <2, π> <4, a>

<3, a> <4, c> <0, EOF>

(3) LZ77

S = a | a b | c | a d | a b c a a | d |

<0,0,a> <1,1,b> <0,0,c> <3,1,d>
<5,4,a> <6,1,EOF>

LZ77 WINDOW 4

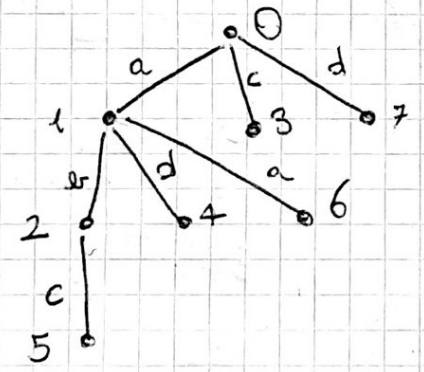
S: a | a b | c | a d | a b | c | a a | d

<0,0,a> <1,1,b> <0,0,c> <3,1,d> <a,1,b>
<0,0,c> <3,1,a> <0,0,d> <0,0,EOF>

LZ78

S = a | a b | c | a d | a b c | a a | d |

DICT



OUT

<0, a>
<1, b>
<0, c>
<1, d>
<2, c>
<1, a>
<0, d>
<0, EOF>

LZW ENCODING

S = a a b c a d a b c a a d

CURR	NEXT	OUT	DICT
a	a	97	256 = aa
a	b	97	257 = ab
b	c	98	258 = bc
c	a	99	259 = ca
a	d	97	260 = ad
d	a	100	261 = da
ab	c	257	262 = abc
ca	a	259	263 = caa
ad	EOF	260	

(4) LZW ENCODING

b a a c b a a a b c b a

CURR	NEXT	OUT	DICT
b	a	98	256 = ba
a	a	97	257 = aa
a	c	97	258 = ac
c	b	99	259 = cb
ba	a	256	260 = baa
aa	b	257	261 = aab
b	c	98	262 = bc
cb	a	259	263 cba
a	EOF	97	

DECODING

INPUT	OUTPUT	DICT
98	b	
97	a	256 = ba
97	a	257 = aa
99	c	258 = ac
256	ba	259 = cb
257	aa	260 = baa
98	b	261 = aab
259	cb	262 = bc
97	a	263 = cba

(5) LZW

ENCODING

c a b a b c a a b c c a

CURR	NEXT	OUT	DICT
c	a	99	256 = ca
a	b	97	257 = ab
b	a	98	258 = ba
ab	c	257	259 = abc
ca	a	256	260 = caa
abc	c	259	261 = abcc
ca	EOF	256	

DECODING

INPUT	OUTPUT	DICT
99	c	
97	a	256 = ca
98	b	257 = ab
257	ab	258 = ba
256	ca	259 = abc
259	abc	260 = caa
256	ca	261 = abcc