

### Frame-level features

1<sup>st</sup> frame  $f_f^1: f_f^1[1], \dots, f_f^1[19]$

2<sup>ed</sup> frame  $f_f^2: f_f^2[1], \dots, f_f^2[19]$

...

M<sup>th</sup> frame  $f_f^M: f_f^M[1], \dots, f_f^M[19]$

Word 1

Word 2

...

Word W

### Stroke segment-level features

1<sup>st</sup> stroke segment  $f_{ss}^1: f_{ss}^1[1], \dots, f_{ss}^1[19 * L_{ss}]$

2<sup>ed</sup> stroke segment  $f_{ss}^2: f_{ss}^2[1], \dots, f_{ss}^2[19 * L_{ss}]$

...

J<sup>st</sup> stroke segment  $f_{ss}^J: f_{ss}^J[1], \dots, f_{ss}^J[19 * L_{ss}]$

...

*Extract*

**Vocabulary**

Primitives:  $f_{ss}^{p,1}, \dots, f_{ss}^{p,K}$

Indices:  $1, \dots, K$

### Style-level feature

*Histogram*  
(Occurrence array)

1<sup>st</sup> sample:  
 $f_s^1[1], \dots, f_s^1[K]$

2<sup>ed</sup> sample:  
 $f_s^2[1], \dots, f_s^2[K]$

...

S<sup>st</sup> sample:  
 $f_s^S[1], \dots, f_s^S[K]$

K

K-1

...

1

K

K-1

...

1

*Co-occurrence matrix*

3	12	...	8
0	5	...	25
32	2	...	1
1	2	...	K

10	0	...	4
9	4	...	1
12	8	...	7
1	2	...	K