Word2Vec

1. CBoW（周围词预测中心词）
2. Skip-Gram（中心词预测周围词）

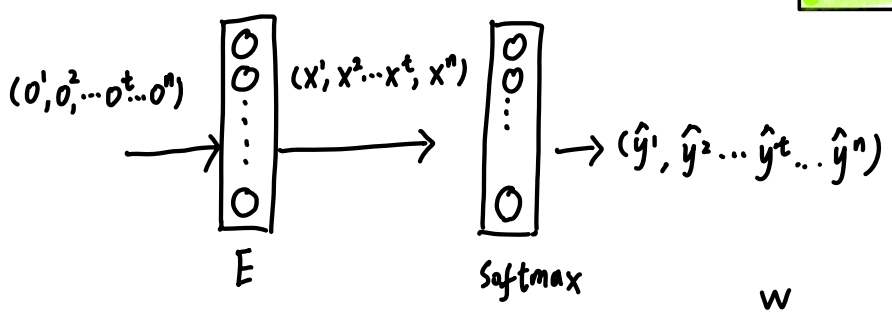
滑动窗口构建训练数据（wd = 5）

CBoW

$input_1$	$input_2$	$input_3$	$input_4$	output
Jay	was	by	a	hit
was	hit	a	red	by
hit	by	red	bus	a
⋮	⋮	⋮	⋮	⋮

Skip-Gram

input	output
hit	Jay
hit	was
hit	by
hit	a
⋮	⋮



嵌入矩阵 one-short向量　　词嵌入

$$E\,(o^1, o^2 \cdots o^t \cdots o^n) = (x^1, x^2 \cdots x^t, x^n)$$

(m, T) (T, n) (m, n)

$$\text{Softmax}\left(\begin{matrix} w \\ \theta_1 \\ \theta_2 \\ \vdots \\ \theta_T \end{matrix}(x^1, x^2 \cdots x^t, x^n)\right) = (\hat{y}^1, \hat{y}^2 \cdots \hat{y}^t \cdots \hat{y}^n)$$

列　(T, m)　(m, n)　(T, n)

$$\text{Softmax}\left(\begin{matrix} \theta_1 x^1 & \theta_1 x^2 \cdots \theta_1 x^t \cdots \theta_1 x^n \\ \theta_2 x^1 & \theta_2 x^2 \cdots \theta_2 x^t \cdots \theta_2 x^n \\ \vdots & \\ \theta_T x^1 & \theta_T x^2 \cdots \theta_T x^t \cdots \theta_T x^n \end{matrix}\right)$$

列

负采样

Skip-Gram

input	output	target
hit	Jay	1
hit	was	1
hit	by	1
hit	a	1
:	:	0

https://www.bilibili.com/video/BV1MS4y147js/?p=5&vd_source=7c442e33c5cce684eca5d991735c3c47