

NLP and Word Embeddings

Word representation

Word representation

```
V = [a, aaron, ..., zulu, <UNK>]
```

1-hot representation

				\mathcal{N}	
Man	Woman	King	Queen	Apple	Orange
(5391)	(9853)	(4914)	(7157)	(456)	(6257)
	$\begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ \vdots \\ 1 \\ \vdots \\ 0 \end{bmatrix}$	$\begin{bmatrix} 0 \\ 0 \\ 0 \\ \vdots \\ 1 \\ \vdots \\ 0 \\ 0 \\ 0 \end{bmatrix}$	$\begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ \vdots \\ 1 \\ \vdots \\ 0 \end{bmatrix}$	$\begin{bmatrix} 0 \\ \vdots \\ 1 \\ \vdots \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}$	$\begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ \vdots \\ 1 \\ \vdots \\ 0 \end{bmatrix}$
0239	09853	Ţ	1	1	Ţ

[V] = 10,000

I want a glass of orange _____.

I want a glass of apple_____.

Featurized representation: word embedding

	Man (5391)	Woman (9853)	King (4914)	Queen (7157)	Apple (456)	Orange (6257)	
1 Gerder			-0.95	0.97	0.00	0.01	
300 Royal	0.0	0.62	0.93	0.95	-0.01	0.00	
Age	0.03	0.62	0.7	0.69	0.03	-0.02	
Food	6.04	(5.01)	0.02	0.01	0.95	0.97	
Size Cost V aliv- verb	e 5391	Q 9853		I want a glass of orange <u>juic</u> . I want a glass of apple <u>juic</u> . Andrew Ng			

Visualizing word embeddings

