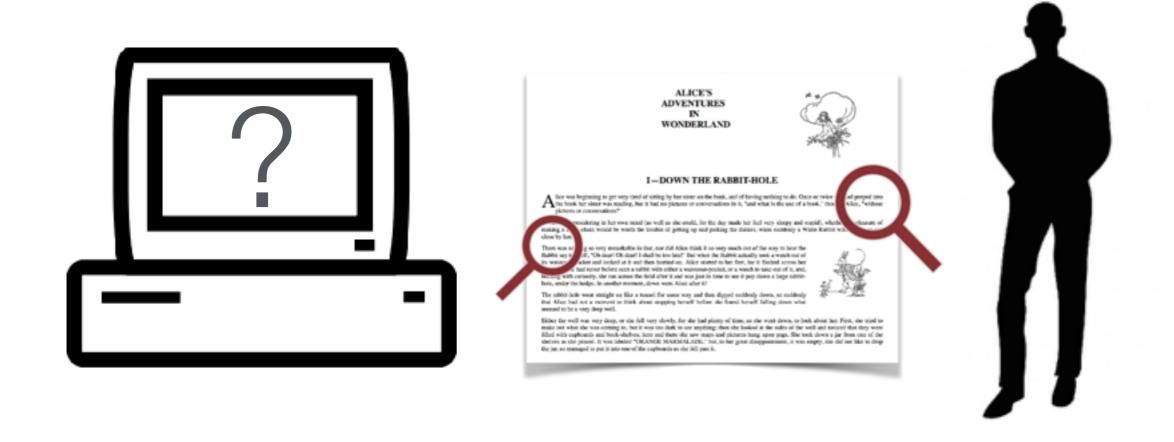
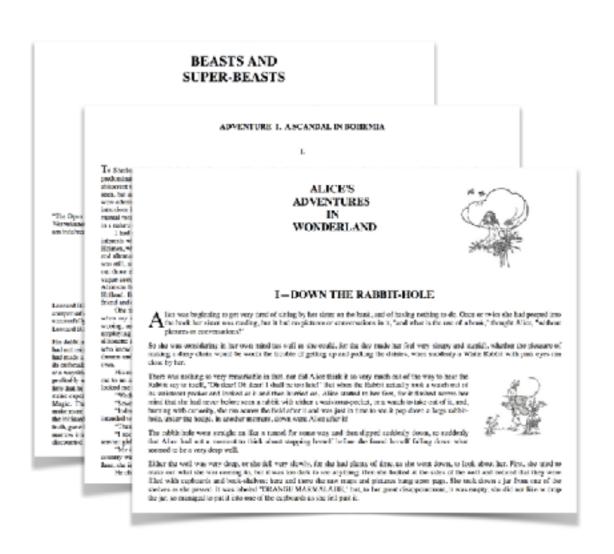


#### **Motivation**

- Extracting knowledge from information understanding unstructured data
- Fast processing of huge amounts of data



Network science applied to text analysis



The

people

covered

their

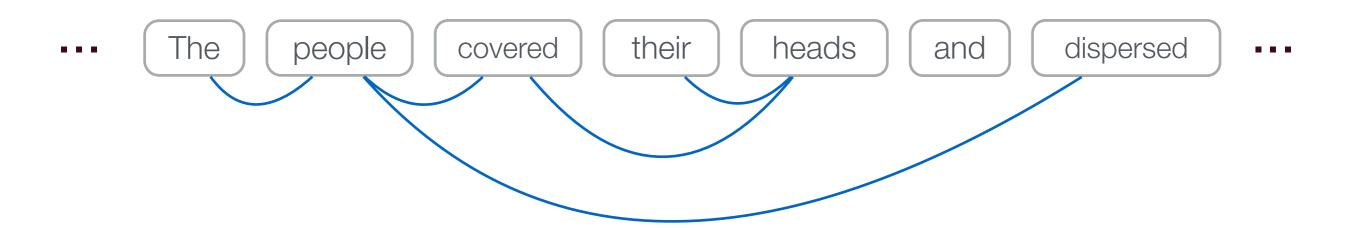
heads

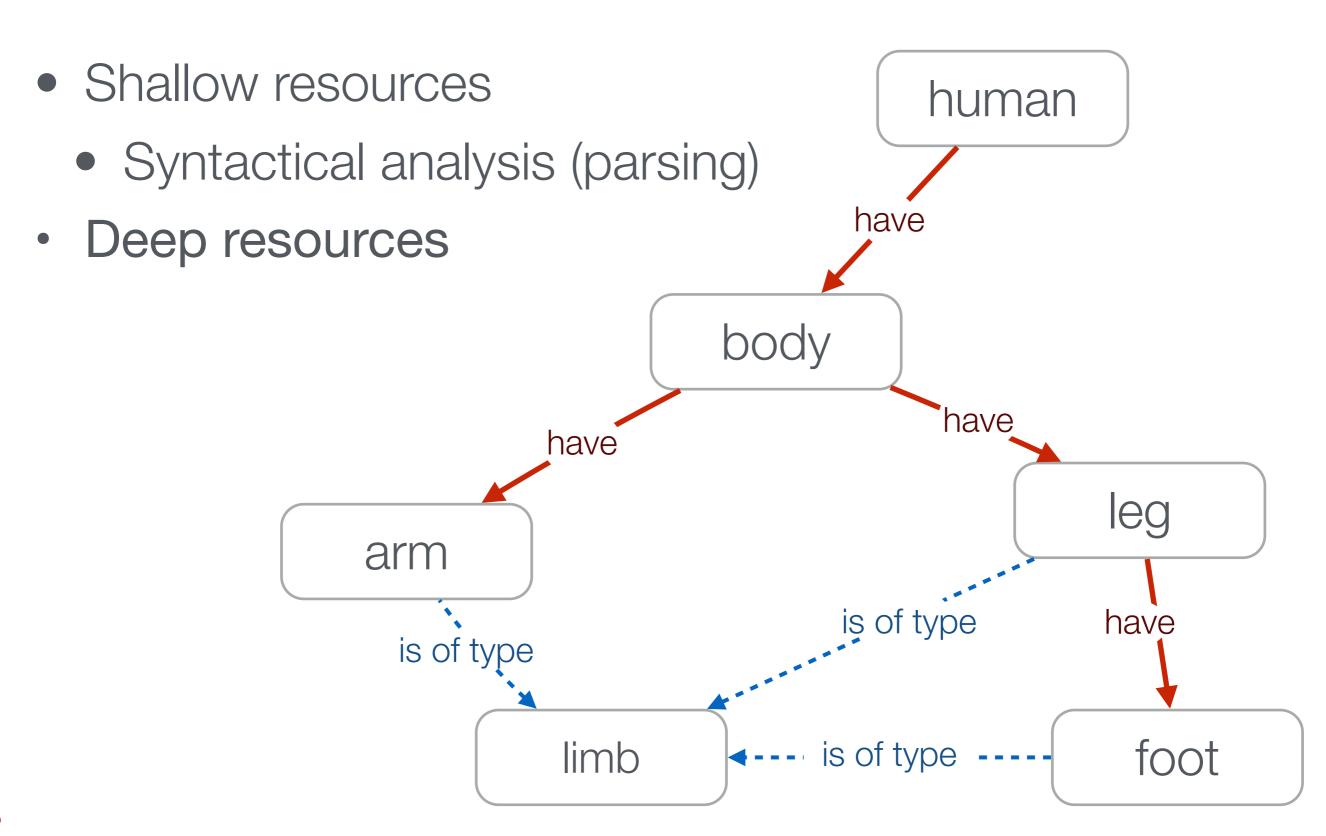
and

dispersed

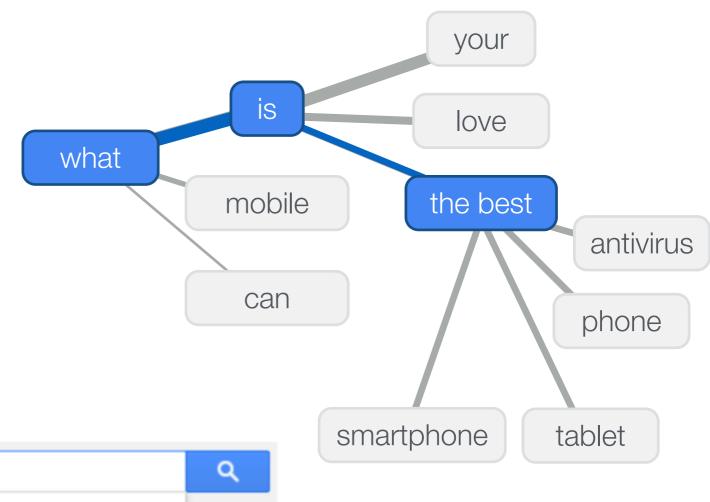
- - -

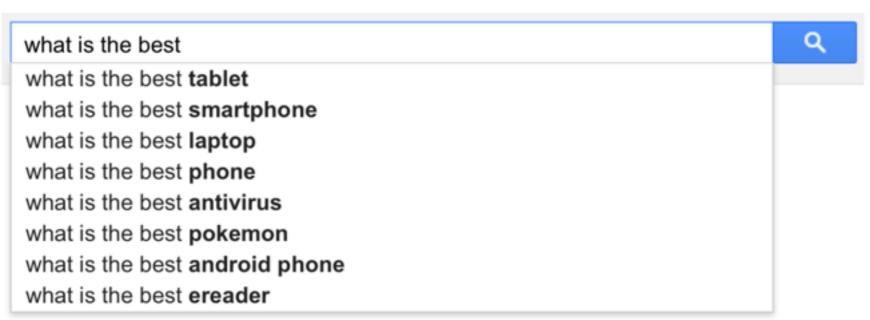
- Shallow resources
  - Syntactical analysis (parsing)





- Shallow resources
  - Syntactical analysis
- Deep resources
- Statistical methods





### Word Embeddings

#### BEASTS AND SUPER-BEASTS

#### ADVENTURE 1. A SCANDAL IN BOHEMIA

The Schedule productions of the schedule schedul

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Lorenzed Hu.

Fin dathle is had made as the conformal are napostal as the caper Magic. The matter travel is in intendible the caper Magic. The matter travel is in intendible the caper macross in a discounted.

and alternative was still, at our those of visite steel. It is found and a street was a street w

ALICE'S ADVENTURES WONDERLAND



#### I-DOWN THE RABBIT-HOLE

A like was buginning to get very dired of dirling by her state on the bank, and of hashing nothing to 40. Occur or twice she had peoped into the book her short was studieg, but it had no plantons or conversations in it, "and what is the use of a book," thought Allier, "addition pleases or conversations?"

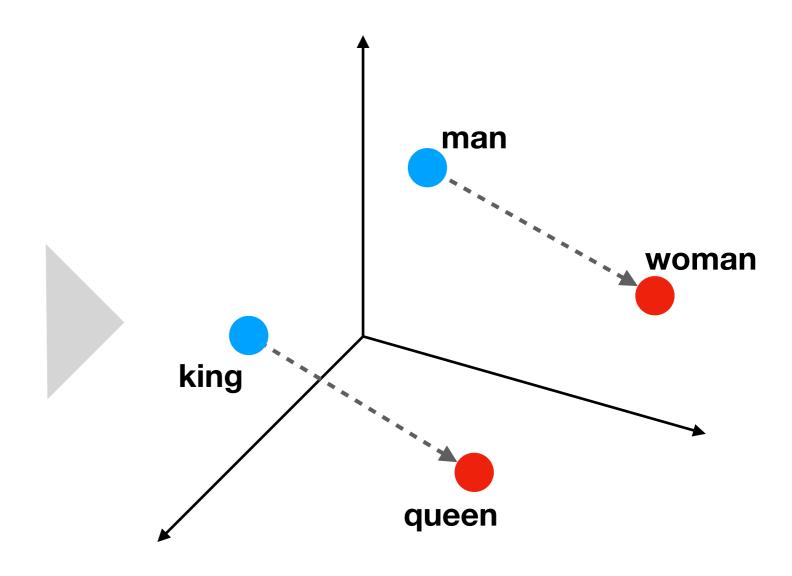
So she was considering in her own mind too well as she could, for the day made has first very strong and stapid, whether the observe of making a theny claim would be worth the treation of gating up and porting the distinct, when studently a Water Eddel with past eyes are claim by here.

There was nothing so very remarkable in that, nor thit Alice think it so very much out of the way to hear the Rabbit say to healt, "On than! the dear! I shall be not hink!" But when the liabital actually work a warch out of its, unknown product and inclored at it and then haveful on, which standed to her feet, for in thebed across her mind that the had cover before soon another with other a watercomposite, or a watch to take out of it, and, burning with contestly, the real scarce the field often it and was just in time to we it pop down a large subhished, under the bedge, in another moment, down were Along after til



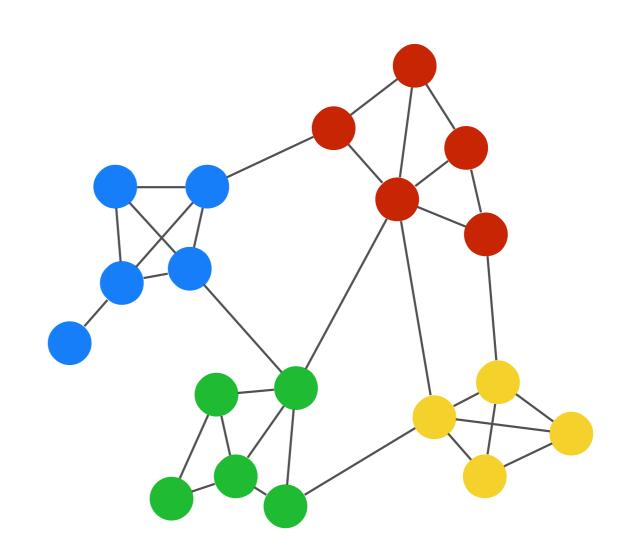
The rabble hole were straight on like a tunnel for some way and then dipped underly down, to underly that Afrechall not a moment to think about suppling broad? In fine, the found broad? falling down what someoff to be a very deep well.

Either the well was very drop, or she fell very slowly, for the had plants of time, as the west down, to look about her. First, the said to peaks are very very very very every every every terror, for the an place or an extent out which is consistent and several to the several peaks are the several peaks and the several peaks are the several peaks and better described that they every filled with cupboards and bette-ballows; here and several near any several pictures hang uses page. He sock down a far from one of the colors are the present in very labellow (MANIE MANIE ALE). This, to be great disapproximate, it was empty, she did not like to though the jet, so mininged to put it into except the exploration as the feel past it.



#### Network-based methods

- Shallow resources
  - Syntactical analysis
- Deep resources
- Statistical methods
- Deep learning
- Networks



... wondering in his darker moments what Sally would say about that project when she heard of it, and he had hoped that she would not hear of it until all the preparations were so complete that interference would be impossible. He was extremely fond of Sally, but there was, he knew, a lamentable ..."

P. G. WodehouseThe Adventures of Sally

### Removing functional words

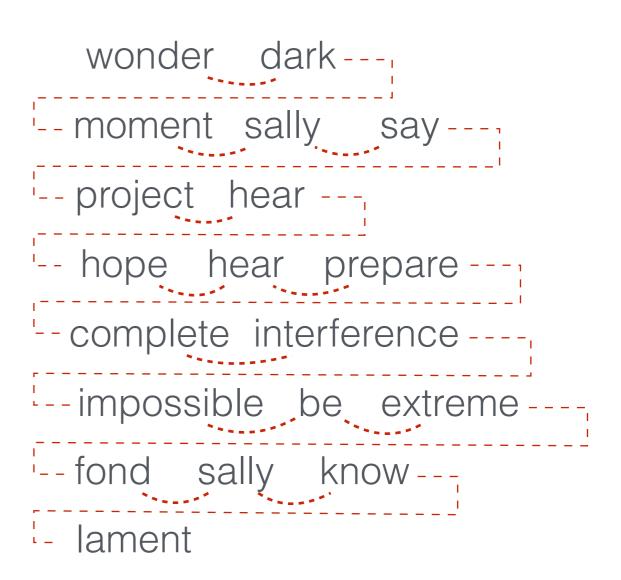
... wondering in his darker moments what Sally would say about that project when she heard of it, and he had hoped that she would not hear of it until all the preparations were so complete that interference would be impossible. He was extremely fond of Sally, but there was, he knew, a lamentable ...'

> P. G. Wodehouse - The Adventures of Sally

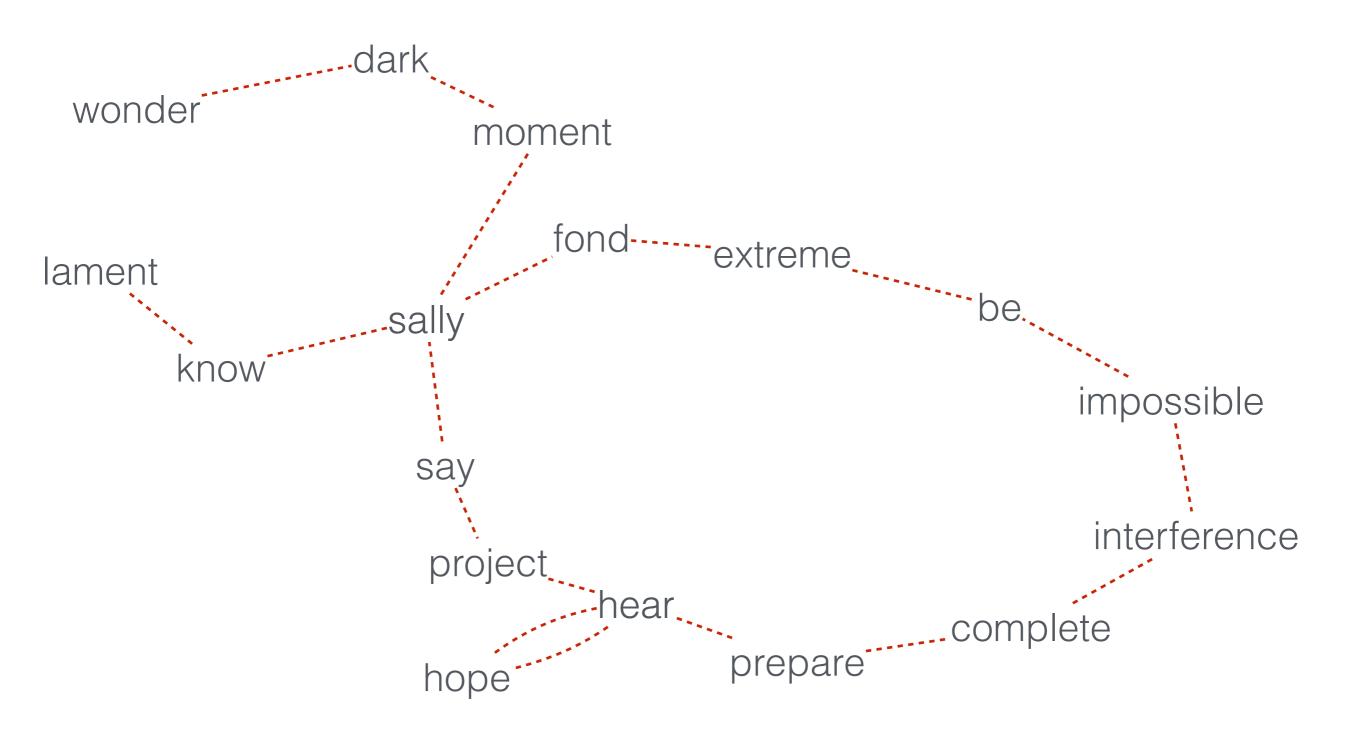
#### Lemmatization

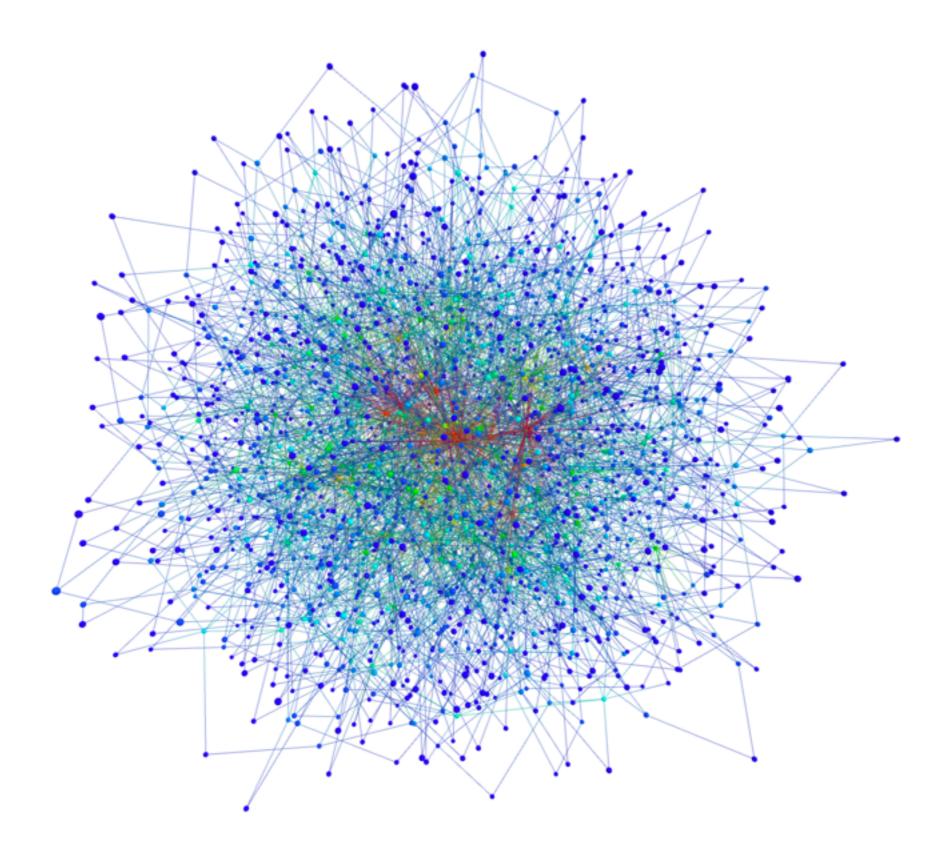
... wondering in his darker moments what Sally would say about that project when she heard of it, and he had hoped that she would not hear of it until all the preparations were so complete that interference would be impossible. He was extremely fond of Sally, but there was, he knew, a lamentable ...'

> P. G. Wodehouse - The Adventures of Sally



```
wonder dark---
-- moment sally say---
-- project hear ---
-- hope hear prepare ---
--complete interference ----
---impossible be extreme----
--fond sally know---
- lament
```

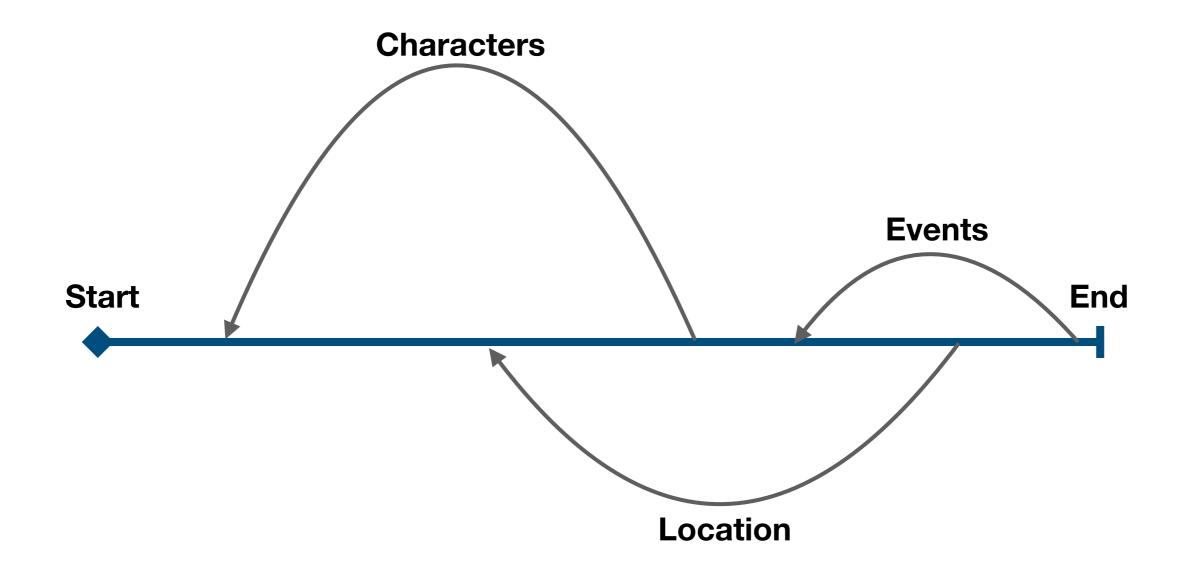




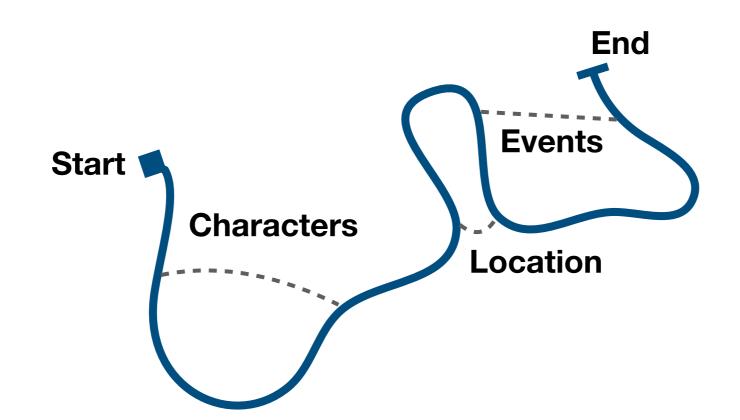
## Narrative

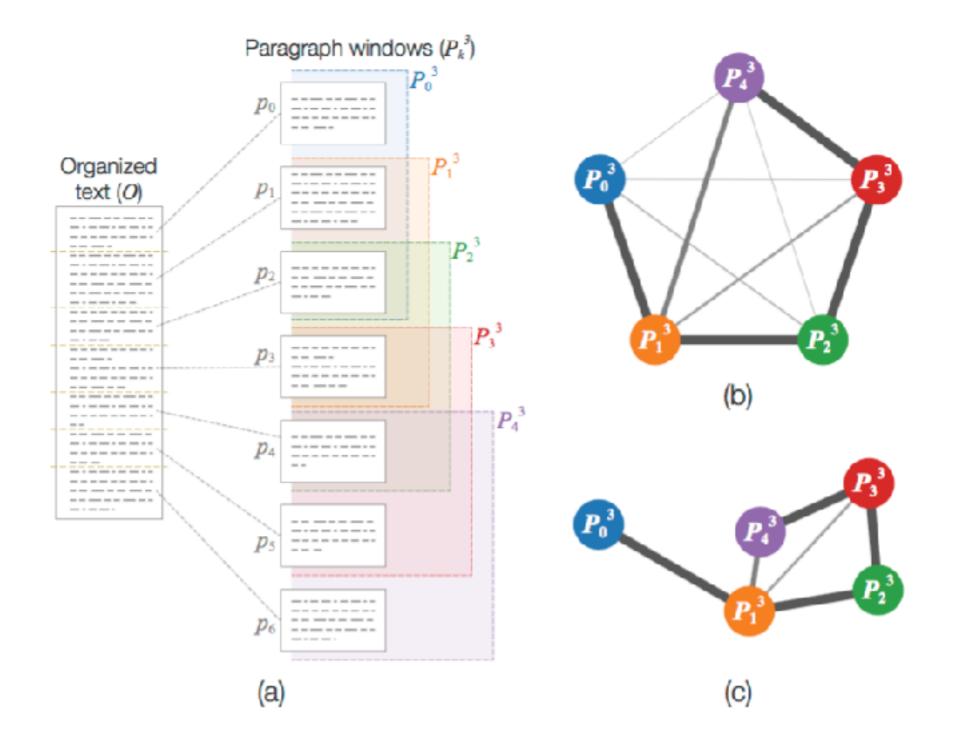


## Narrative



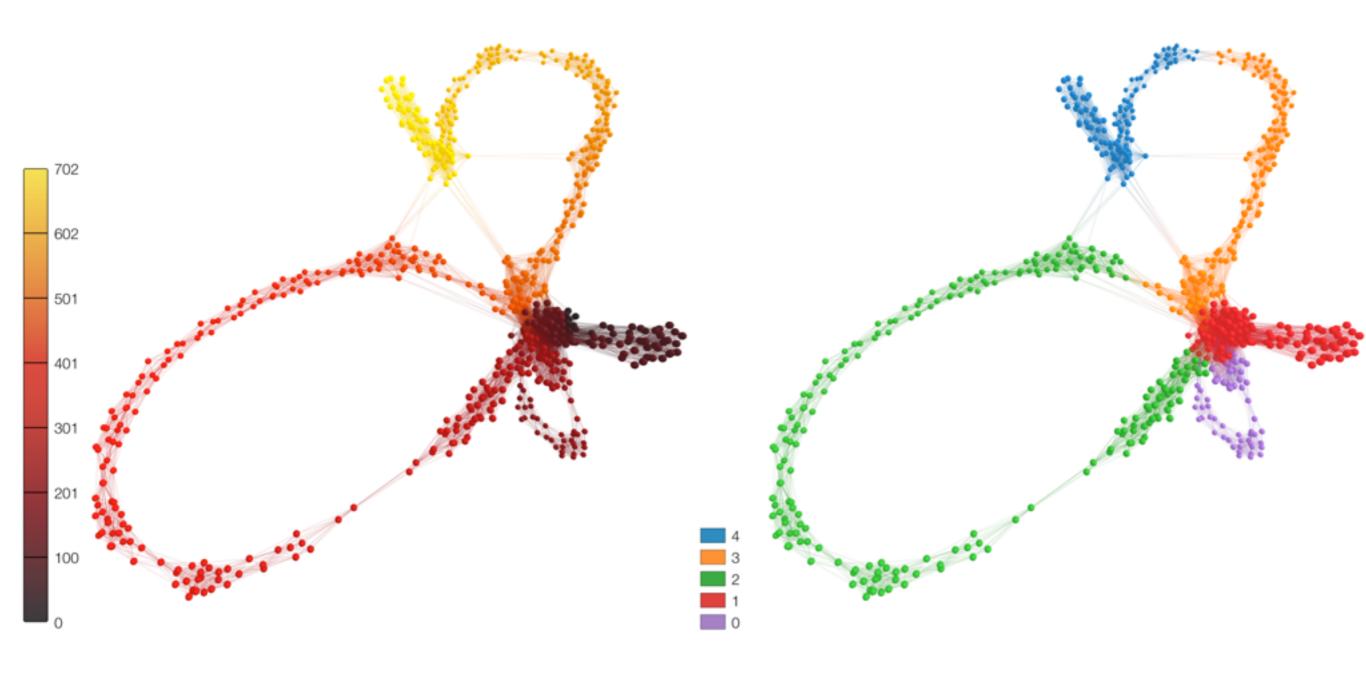
## Narrative





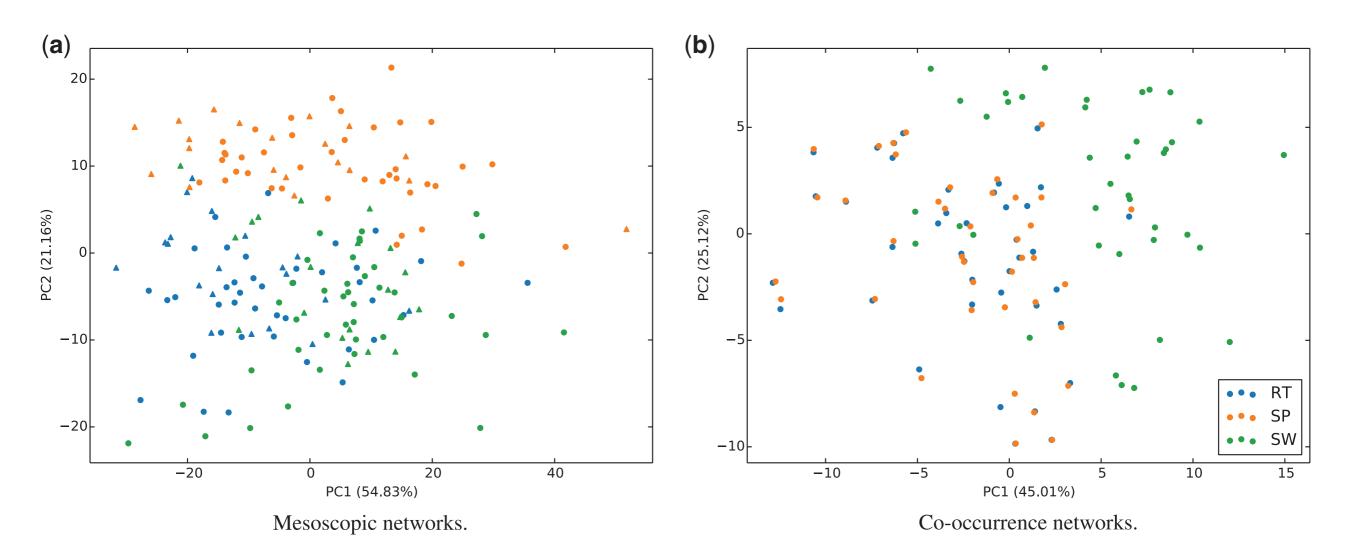
Mesoscopic representation of texts as complex networks H. F. de Arruda, F. N. Silva, V. Q. Marinho, D. R. Amancio, L. da F. Costa <a href="https://arxiv.org/abs/1606.09636">https://arxiv.org/abs/1606.09636</a>

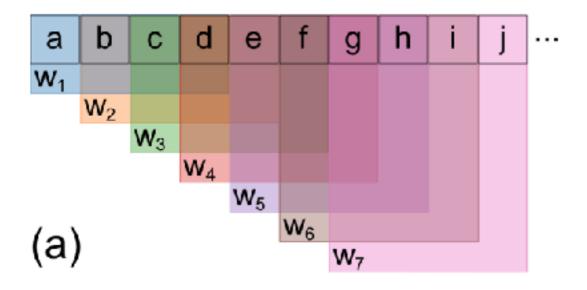
#### Alice in Wonderland



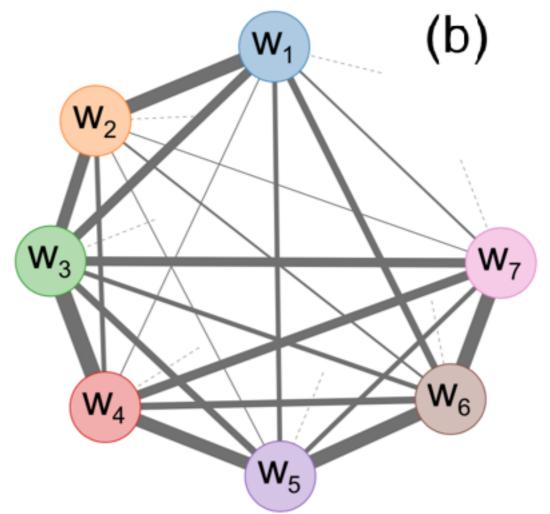
Mesoscopic representation of texts as complex networks H. F. de Arruda, F. N. Silva, V. Q. Marinho, D. R. Amancio, L. da F. Costa <a href="https://arxiv.org/abs/1606.09636">https://arxiv.org/abs/1606.09636</a>

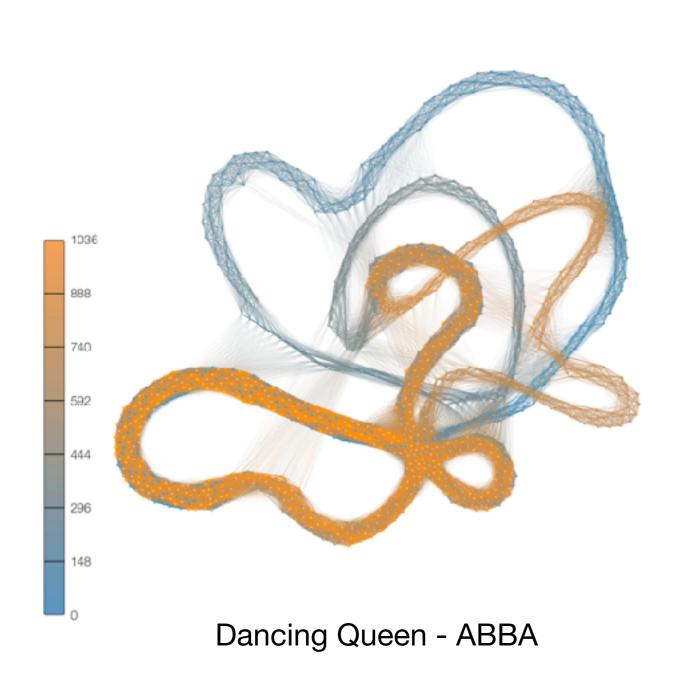
### Classification using mesoscopic representation

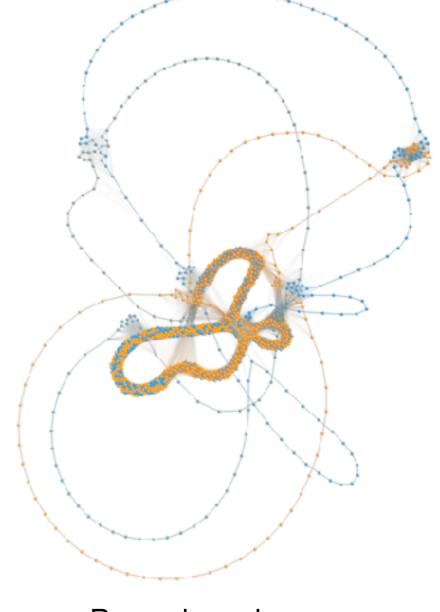


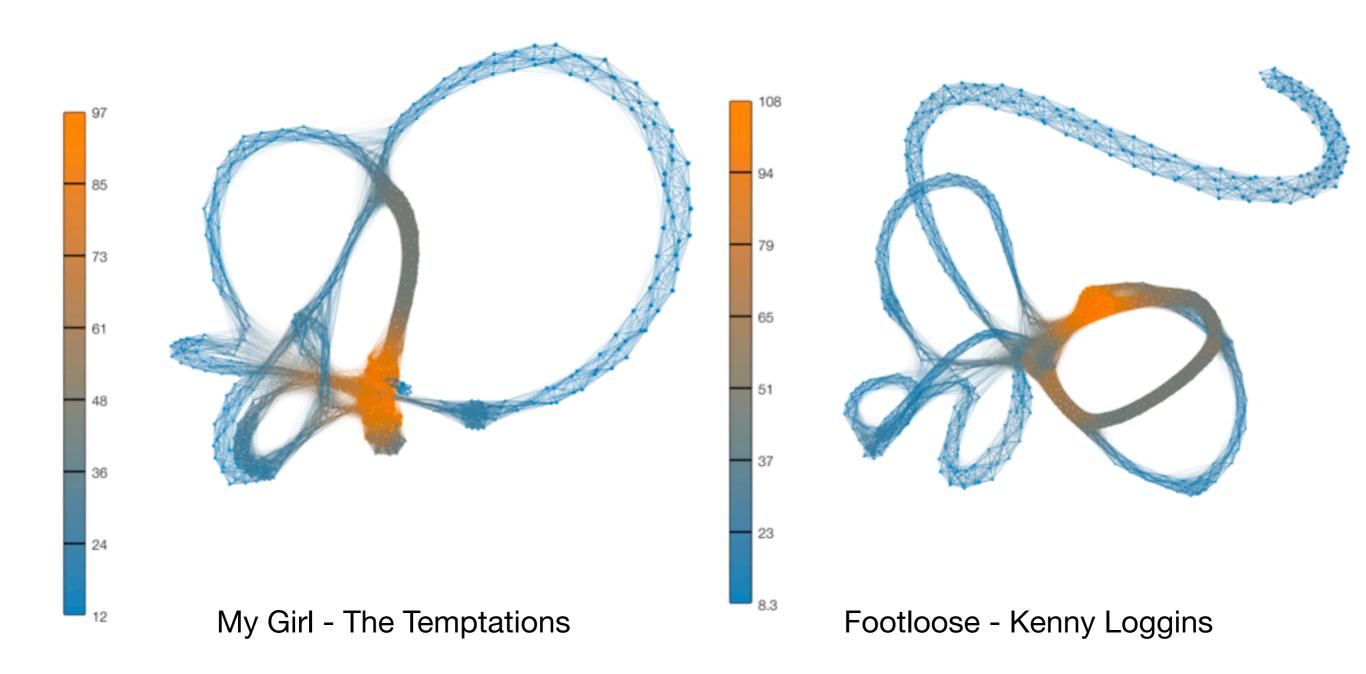


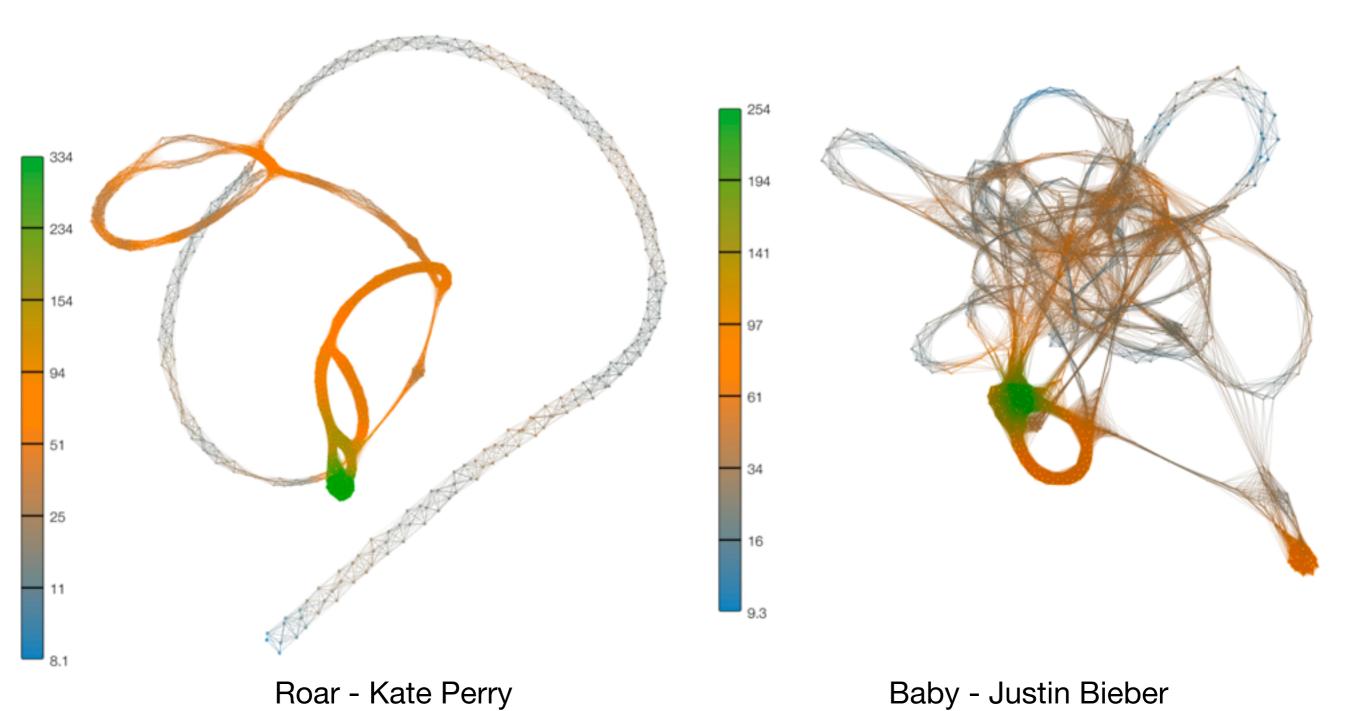
w<sub>1</sub>: "ab", "bc", and "cd"
w<sub>2</sub>: "bc", "cd", and "de"
w<sub>3</sub>: "cd", "de", and "ef"
w<sub>4</sub>: "de", "ef", and "fg"
w<sub>5</sub>: "ef", "fg", and "gh"
w<sub>6</sub>: "fg", "gh", and "hi"
w<sub>7</sub>: "gh", "hi", and "ij"

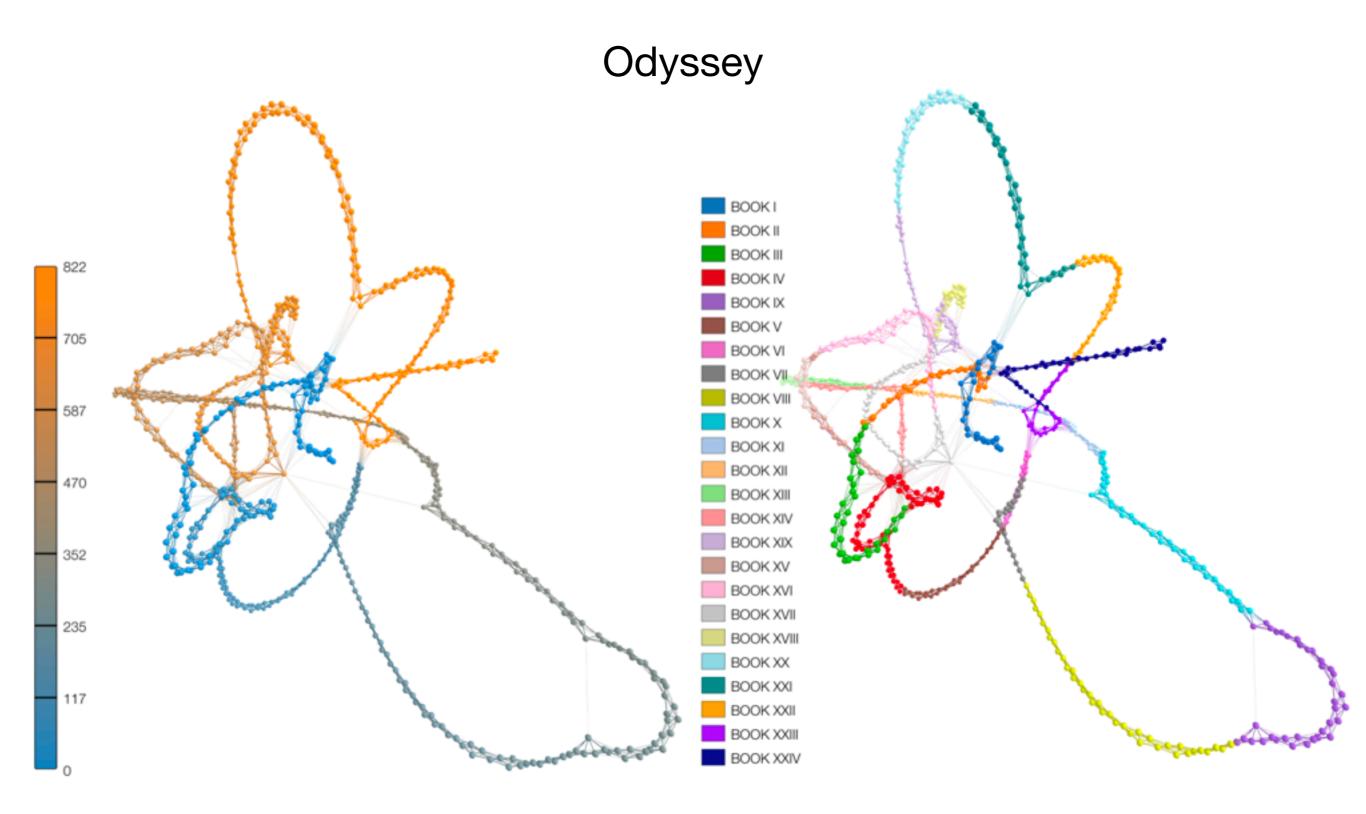












Demo

#### Is it fake? Is it a narrative?



