Nation & Genre & Gender

A Comparative Social Network Analysis
of Irish and British Fiction, 1800–1922

Project Team

UCD Humanities Institute and School of English | UCD School of Computer Science and INSIGHT
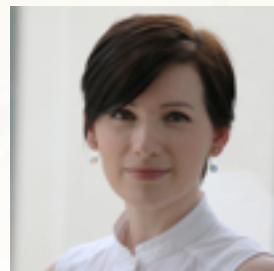
Professor Gerardine Meaney

Dr Karen Wade

Dr Derek Greene

Dr Maria Mulvany

Dr Jenny Rothwell

Ms. Siobhán Grayson

Workshop Format: 4pm - 5.45pm

Chair: Dr. Emilie Pine

1. Introduction to Project: Gerardine Meaney

2. Case Study A Portrait of the Artist as a Young Man: Gerardine Meaney

3. Annotation: Maria Mulvaney

4. Methodology: Karen Wade

5. Communities: Siobhán Grayson

6. Next Steps: Gerardine Meaney

7. Responses and Questions

The Project

- Research Project funded by **Irish Research Council** in 2013.
- Inter-disciplinary collaboration between **UCD Humanities Institute** and **SFI Insight Centre for Data Analytics**.
- Currently creating an electronic corpus of approximately **100 Irish** and **English** novels from the period **1800-1922**.
- Corpus includes key representative and influential texts, equal numbers of Irish and English, men and women.
- Using methods from **social network analysis** to explore and visualise the texts from new perspectives.
- Aim to apply intersectional (gender, class, ethnicity) analysis to these networks, and engage in intensive critical analysis.

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Part I
Interpretation & Analytics

Digital Humanities in a Different World

- 'Despite the aggressive promotion of Digital Humanities as a radical insurgency, its institutional success has for the most part involved the displacement of politically progressive humanities scholarship and activism in favour of the manufacture of digital tools and archives.' (**Allington** et al , https://lareviewofbooks.org/article/neoliberal-tools-archives-political-history-digital-humanities)

- Allington et al's history of DH based on a couple of very well endowed US and 1 UK institutions

- 'One way to frame the question more productively is to think about how digital frameworks open up a new dimension of humanistic inquiry. Digital life has humanist dimensions. Technology is nothing but humanness.' (**Parham**, https://lareviewofbooks.org/article/digital-humanities-interview-marisa-parham/)

Cultural analytics and the persistence of interpretation

- Scaling up without sacrificing precision e.g. labour intensive but necessary mark up prior to data analysis.

- Paying attention to cultural difference e.g. Stanford Named Entity Recognition software has been trained on a US newspaper dataset, accuracy for 19th/early 20th century European texts as low as 49%.

- Historically sensitive methodology, e.g. most SNA to date excludes unnamed entities and collectives, so cuts out most servants and working class characters in many novels.

- Respecting that novels are complex aesthetic artefacts as well as fascinating data sets.

Digital Humanities and Irish Studies

- Development of DH in Ireland different from US and UK models.

- Rooted in skills built in recovery and access projects, women's writing, nineteenth century novel, e.g. Electronic Loeber Guide to Irish Fiction http://www.lgif.ie

- Lack of large scale digitisation projects nationally, but lot of Irish material in British and US libraries.

- Opportunities offered by cultural and linguistic specificity.

- Possibility and challenges of incorporating oral and written literature in analysis.

- Useful tool to deal with radically expanded canon: Claire Connolly's point re definition of 'Irish Tale' currently based on too few texts relevant for wide range of Irish fiction.

Why Social Network Analysis?

- Novels do not offer empirical evidence of actual social relations, but they do offer us an extraordinarily rich insight into how society and community are imagined by writers and readers.

- Interactions between characters in novels can yield maps of textual social networks and imagined community.

- Analysing corpus of fiction over an extended time period (1800-1922) and visualising these networks will allow us to trace these maps of imagined communities.

- Arguments/assumptions/hypotheses that there are distinctive features in how social relations influence and are represented in Irish fiction.

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Style, Structure and Social Networks

- SNA does indicate differences in the social worlds of the texts in the corpus to date and the impact of historical forces on them can be identified.

- Novels do not offer empirical evidence of actual social relations, but they do offer us an extraordinarily rich insight into how society and community are imagined by writers and readers.

- Combining digital SNA analysis with critical reading offers possibility of engagement with expanded canon.

- BUT literary form, style, narrative technique and historical forces demand attention and impact on shape of networks.

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Corpus selection process

- Human expertise: project management committee identified 200 potential texts, combining canonical and popular.

- Balance of Irish and English, female and male authors, genre representation, across historical range.

- Prioritisation dictated by need to develop and test methodology.

Social Network Analysis, Literature, History

Insight into the process by which 'phenomena encountered serially in a particular society are "translated" and assigned value in terms of their position in the iconic space of that society's purported culture…and …the metaphorization of a spatialized culture into the textual space of a novel.
(James Buzard, p.12)

Revolutionary egocentricity: Stephen Dedalus

- 6 nodes out of 451 appear in 6 or more of 20 sub-divisions of the 5 chapters, only 3 in more than 10.

- Only people close to Stephen statistically are his parents.

- Similar patterns in Katherine Cecil Thurston's Max (1910), except that there the romantic couple rather than the family that is isolated at the top.

- Pattern emerging of increased isolation of the central protagonist and their very close circle in the late 19th and early 20th century.

- Genre significant (applies to HG Wells, but not Agatha Christie).

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Portrait Distinct Networks

Chapter 1 - Family and School

Portrait Distinct Networks

Chapter 2 - Patrilinear Inheritance and a Broader World

Portrait Distinct Networks

Chapter 3 - Solitary Soul?

Chapter 3 - Solitary Soul?

Portrait Distinct Networks

Chapter 4 - Family, Peers, Nameless and Important Girl

Portrait Distinct Networks

Chapter 5 - Cranly, Peers, Girl with name, Mother

Calculated Disconnection or the Randomness of the Street?

- Is lack of recurrence of characters across chapters in *Portrait of the Artist* indicative of extreme social fragmentation in Joyce's Dublin?

- As the Joyces move house and down social classes, there is no social continuity that links them back to old associates

Mapping Plots

- To what extent do the social networks in *Portrait* mirror the patterns of social interactions of Dublin as Joyce and his contemporaries would have experienced it?

- Joyce isn't providing a plot that links them in the way Dickens would, for example.

Bleak House - 0.188 difference in Betweenness in Top 10 characters
0.214 in Top 20

Character Name	Chapters	Betweenness
Esther Summerson	44	0.243
Lady Dedlock	38	0.130
Mr. John Jarndyce	40	0.127
The Lord Chancellor	16	0.093
Mr. Bucket	17	0.087
Mr. Tulkinghorn	32	0.080
Mr. Snagsby	14	0.079
Sir Leicester Dedlock	26	0.077
Mr. Krook	13	0.072
Mr. George	18	0.055
Mr. William Guppy	21	0.055
Richard Carstone	34	0.053

Portrait of the Artist 0.727 difference in Betweenness in Top 10 characters
0.74 in Top 20

Character Name	Chapter Sub-divisions	Betweeness
Stephen Dedalus	20	0.746
Simon Dedalus	16	0.162
Mary Dedalus	13	0.062
Cranly	3	0.093
Conmee	7	0.045
Emma	9	0.036
Dante	4	0.030
Temple	2	0.016
Fleming	2	0.006
Wells	2	0.018
Father Arnall	3	0.024
Simon Moonan	4	0.019
Vincent Heron	3	0.019

National Plot

Nation as Shared Action

- Inspector Bucket: 'the whole bileing of people was mixed up in the same business, and no other' (*Bleak House*).

Nation as Extra-Territorial Future

- 'The shortest way to Tara was VIA Holyhead'.

- 'Michael Robartes remembers forgotten beauty and, when his arms wrap her round, he presses in his arms the loveliness which has long faded from the world. Not this. Not at all. I desire to press in my arms the loveliness which has not yet come into the world'.

Part III

The Annotation Process

Chapter 1 - Stephen's Classmates

(The Fellows 1) talked together in little groups. One **(Fellow 6)** said: -- They were caught near the Hill of Lyons. --Who caught them? -- **Mr Gleeson** and **Father Minister**. They were on a car. The same fellow added: -- A **(Fellow 7)** in the higher line told me. **Fleming** asked: --But why did they run away, tell us? --I know why, **Cecil Thunder** said. Because they had fecked cash out of **Conmee**'s room. --Who fecked it? -- **Kickham's Brother.** And they all went shares in it. --But that was stealing. How could they have done that? --A fat lot you know about it, **Cecil Thunder**! **Wells** said. I know why they scut. --Tell us why. --I was told not to, **Wells** said. --O, go on, **Wells**, all said. You might tell us. We won't let it out. **Stephen Dedalus** bent forward his head to hear. **Wells** looked round to see if anyone was coming. Then he said secretly: --You know the altar wine they keep in the press in the sacristy? --Yes. --Well, they drank that and it was found out who did it by the smell. And that's why they ran away, if you want to know. And the **(Fellow 6)** who had spoken first said: --Yes, that's what I heard too from the **(Fellow 7)** in the higher line. The fellows all were silent. **Stephen Dedalus** stood among them, afraid to speak, listening. A faint sickness of awe made him feel weak. How could they have done that? He thought of the dark silent sacristy. There were dark wooden presses there where the crimped surplices lay quietly folded. It was not the chapel but still you had to speak under your breath. It was a holy place. He remembered the summer evening he had been there to be dressed as boatbearer, the evening of the Procession to the little altar in the wood. A strange and holy place. **The Boy That Held The Censer** had swung it lifted by the middle chain to keep the coals lighting. That was called charcoal: and it had burned quietly as the fellow had swung it gently and had given off a weak sour smell. And then when all were vested he had stood holding out the boat to **Conmee** and **Conmee** had put a spoonful of incense in it and it had hissed on the red coals. **(The Fellows 1)** were talking together in little groups here and there on the playground. The fellows seemed to him to have grown smaller: that was because a sprinter **(Fellow 8)** had knocked him down the day before, **a fellow out of second of grammar**. He **(Stephen Dedalus)** had been thrown by the fellow's machine lightly on the cinder path and his spectacles had been broken in three pieces and some of the grit of the cinders had gone into his mouth.

That was why the fellows seemed to him smaller and farther away and the goalposts so thin and far and the soft grey sky so high up. But there was no play on the football grounds for cricket was coming: and some said that **Barnes** would be prof and some said it would be **(Mr Flowers).** And all over the playgrounds they were playing rounders and bowling twisters and lobs. And from here and from there came the sounds of the cricket bats through the soft grey air. They said: pick, pack, pock, puck: little drops of water in a fountain slowly falling in the brimming bowl. **Athy**, who had been silent, said quietly: --You are all wrong. All turned towards him eagerly. --Why? --Do you know? --Who told you? --Tell us, **Athy**. **Athy** pointed across the playground to where **Simon Moonan** was walking by himself kicking a stone before him. --Ask him, he said. The **fellows (The Fellows 1)** looked there and then said: --Why him? --Is he in it? **Athy** lowered his voice and said: --Do you know why those fellows scut? I will tell you but you must not let on you know. --Tell us, **Athy**. Go on. You might if you know. He paused for a moment and then said mysteriously: --They were caught with **Simon Moonan** and **Tusker Boyle** in the square one night. The fellows looked at him and asked: --Caught? --What doing? **Athy** said: --Smugging. All the fellows were silent: and **Athy** said: --And that's why. **Stephen Dedalus** looked at the faces of the fellows but they were all looking across the playground. He wanted to ask somebody about it. What did that mean about the smugging in the square? Why did **The Five Fellows Out Of The Higher Line** run away for that? It was a joke, he thought. **Simon Moonan** had nice clothes and one night he had shown him a ball of creamy sweets that **The Fellows Of The Football Fifteen** had rolled down to him along the carpet in the middle of the refectory when he was at the door. It was the night of the match against the Bective Rangers; and the ball was made just like a red and green apple only it opened and it was full of the creamy sweets. And one day **Tusker Boyle** had said that an elephant had two tuskers instead of two tusks and that was why he was called **Tusker Boyle** but some fellows called him Lady **Tusker Boyle** because he was always at his nails, paring them. **Eileen** had long thin cool white hands too because she was a girl. They were like ivory; only soft. That was the meaning of TOWER OF IVORY but protestants could not understand it and made fun of it. One day he had stood beside her looking into the hotel grounds. **A Waiter Was Running Up A Trail Of Bunting** on the flagstaff and **a fox terrier** was scampering to and fro on the sunny lawn.

Sample of Extra-Diegetic Dictionary

Sir Walter Scott: male, scottish, novelist, playwright, poet, historical, literary

Adam: male, religious, mythological

Addison: male, english, writer, statesman, political, literary, historical

Aleel: female, fictional, play, character from *The Countess Kathleen*

Aristotle: male, historical, greek, philosopher, scientist

Archbishop of Armagh Michael Logue: male, irish, historical, catholic, archbishop, religious

Archbishop William Walsh of Dublin: male, archbishop, irish, religious, historical, catholic

Lord Byron: male, english, poet, historical, literary

ben Jonson: male, english, historical, playwright, poet, actor, literary

Bishop Lanigan: male, bishop, irish, religious, historical, catholic

Blessed John Berchmans: male, jesuit, historical, religious, catholic, Belgian, saint, portrait

Blessed Virgin Mary: female, mother, religious

Book of Psalms: religious, book, literary

Bruno the Nolan: male, historical, italian, dominican, philosopher, poet, mathematician, literary

Buck Egan: male, irish, historical, protestant, political

Buck Whaley: male, protestant, historical, political

Cardinal Newman: male, english, cardinal, priest, catholic, religious, historical, literary, saint

Claude Melnotte: male, fictional, literary, character in Bulwer-Lytton's *The Lady of Lyons*

Daniel O'Connell: male, historical, political, irish, catholic

Hely Hutchinson: male, irish, lawyer, statesman, trinity provost, political, historical

Lord Tennyson: male, english, historical, poet, literary
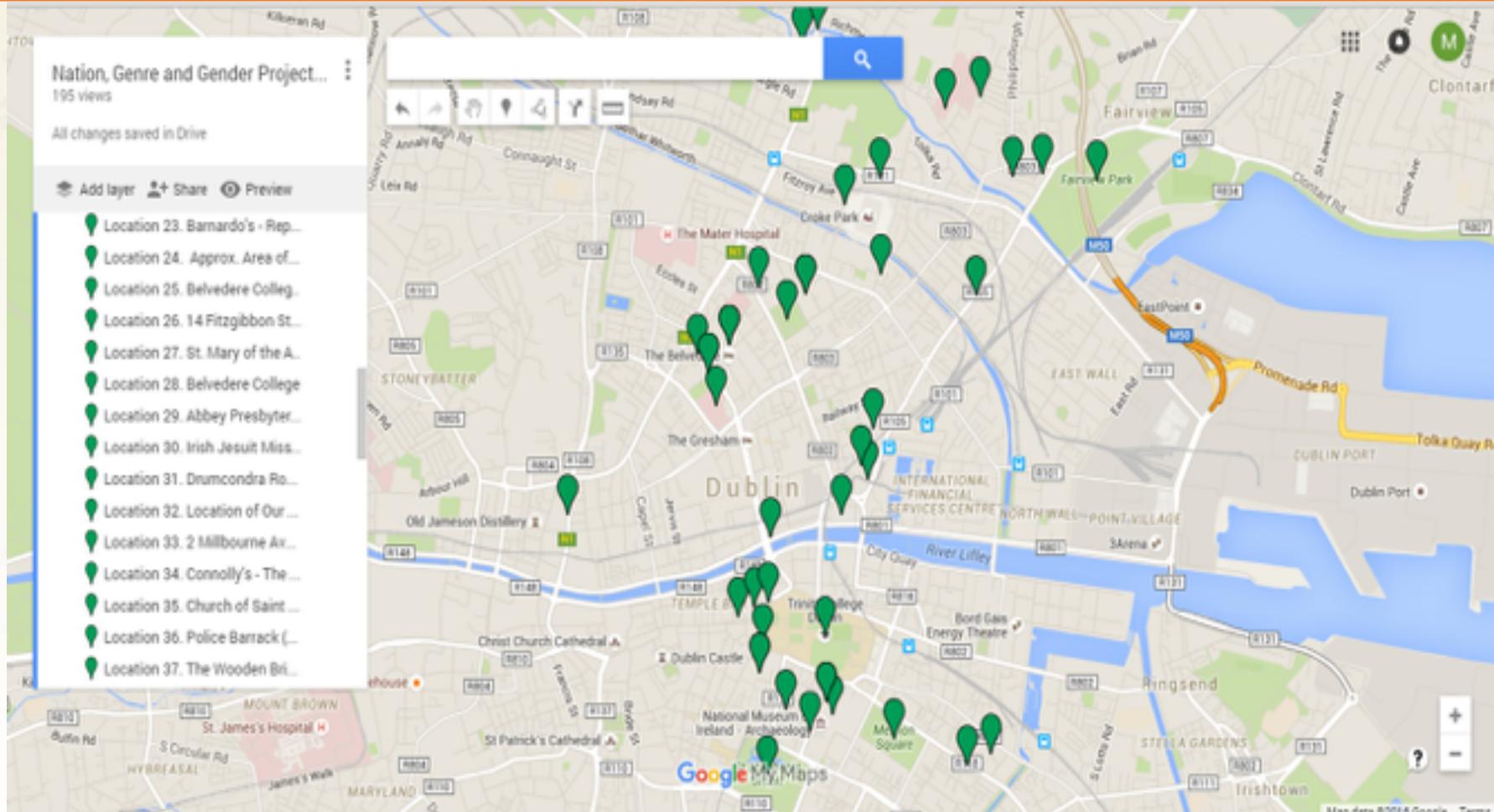
Locations in Portrait of the Artist
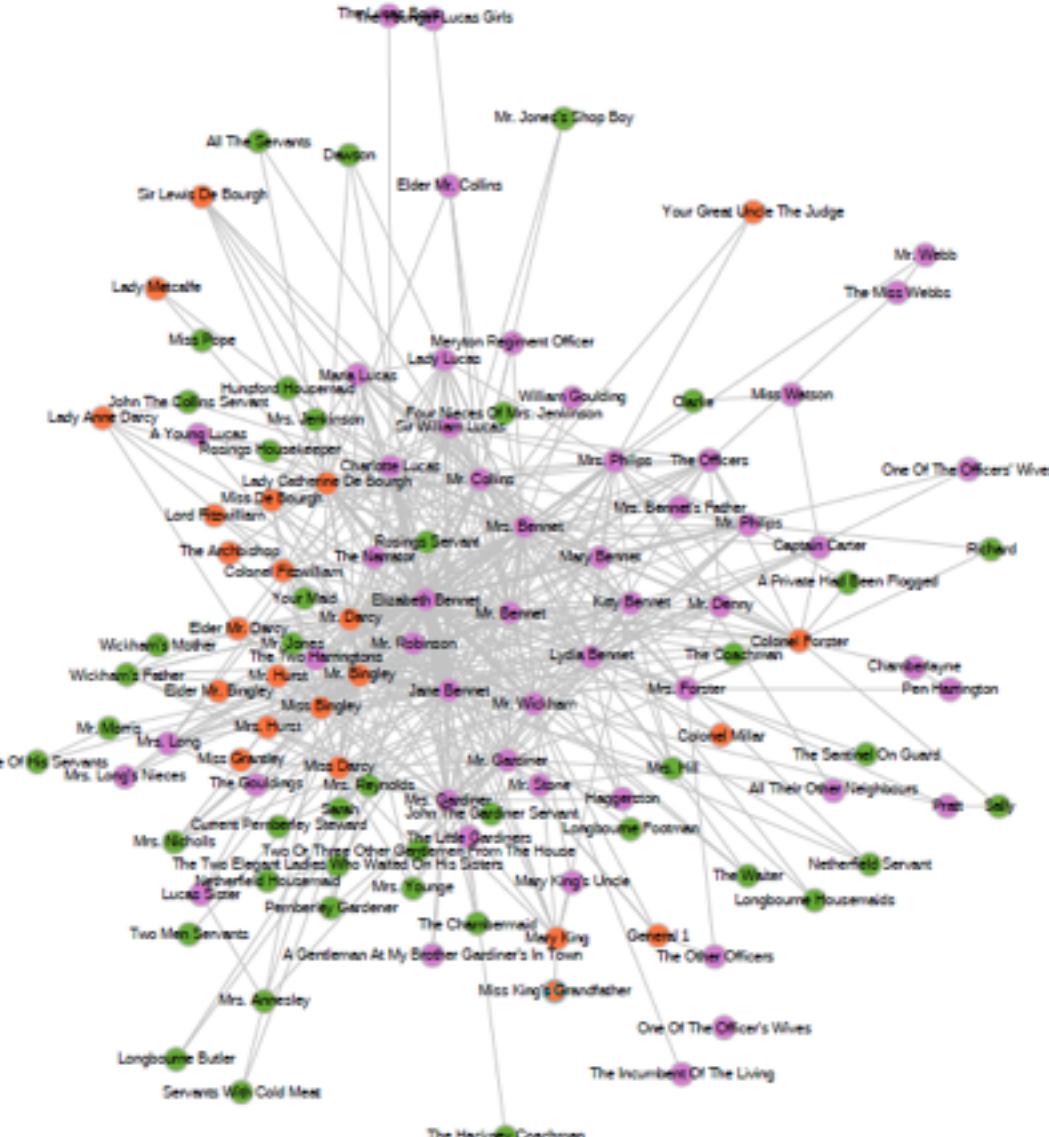
Part IV

Methodology

Social Class Distribution Throughout the Novel

Middle
the gentry and professionals

= 51 of 117 chars (43.6%)

Upper
aristocrats, heiresses, very wealthy members of the gentry

= 23 of 117 chars (19.7%)

Working
tradespeople, servants and service providers

= 43 of 117 chars (36.7%)

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Knowable Communities: Four-and-Twenty Families

- Neighbours in Jane Austen are not the people actually living nearby; they are the people living a little less nearby who, in social recognition, can be visited. What she sees across the land is a network of propertied houses and families, and through the holes of this tightly drawn mesh most actual people are simply not seen.

- To be face-to-face in this world is already to belong to a class. No other community, in physical presence of in social reality, is by any means knowable. And it is not only most of the people who have disappeared … It is also most of the country, which becomes real only as it relates to the houses which are the real nodes; for the rest of the country is weather or a place for a walk. (241, emphasis mine)

- Williams, Raymond, Culture and Society, 1780-1950 (Columbia University Press, 1983)

Eight million out of nine million: the depiction of the poor in Pride and Prejudice
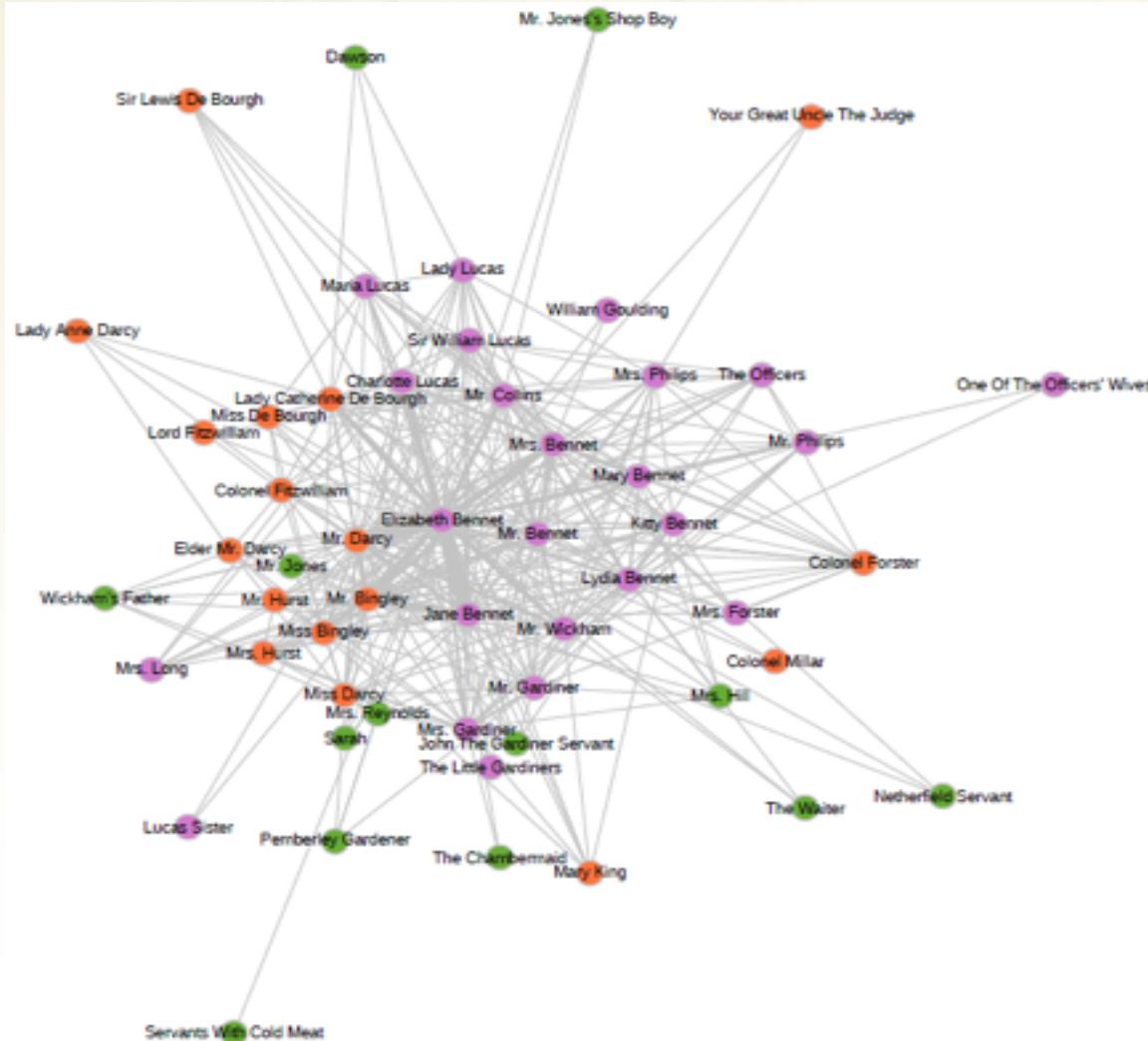
Pride and Prejudice also includes a large number of characters who are servants, many identified by name. As most of them have no dialogue and do nothing to forward the plot, their presence in the novel at all may seem curious, but the depiction of the working class would have been a clear message to Austen's original readers, as the servants in Pride and Prejudice refute the assumptions of prominent radical Whig politicians Edmund Burke, Frederic Eden, Jeremy Bentham, and Patrick Colquhoun, who depicted the lower class as ignorant, dishonest, and wasteful.

- Craig and Eckersley, *Jane Austen and the State of the Nation* (Springer, 2015)

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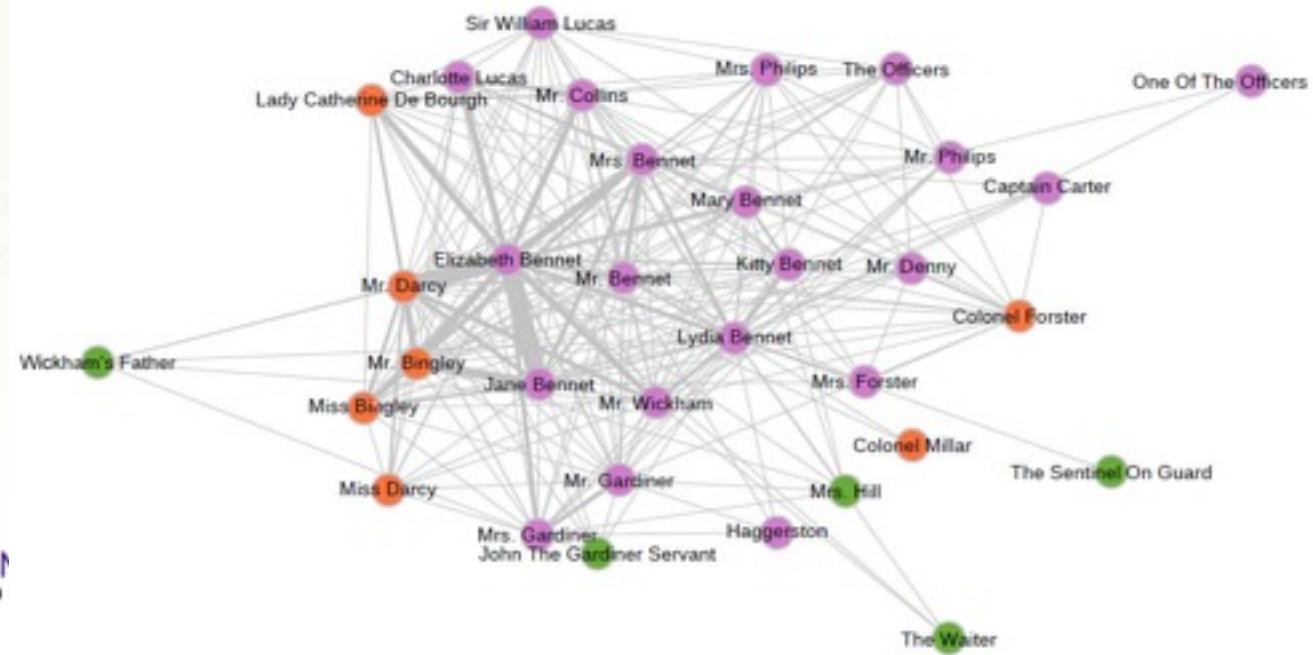
Elizabeth and Lydia's Egonetworks

Elizabeth
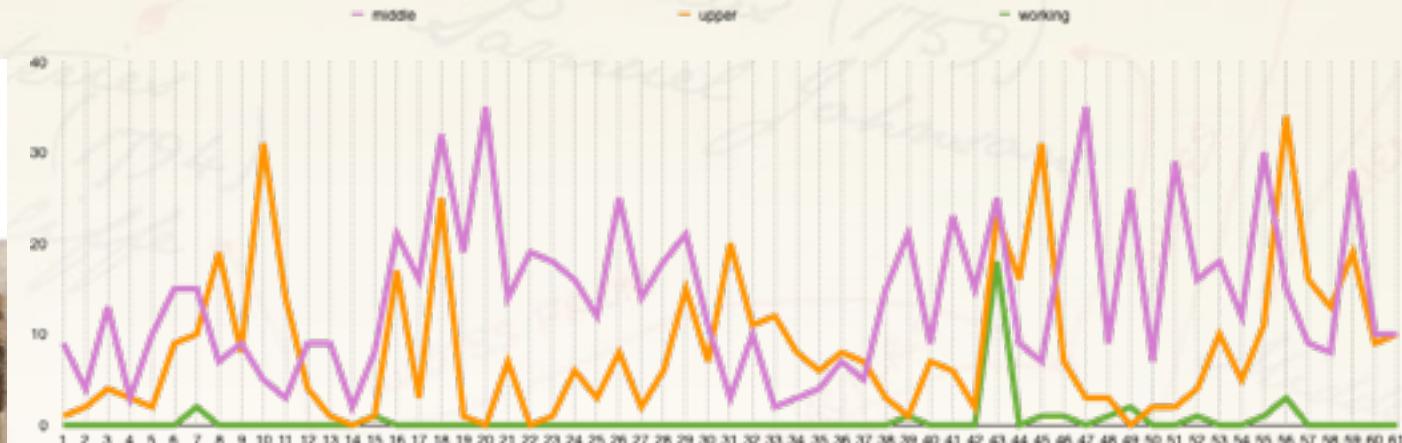
"Such low connections"

Lydia

Parallel Progress

Elizabeth

Lydia

Differing concepts of disgrace

Mrs. Bennet could hardly comprehend it. That his anger could be carried to such a point of inconceivable resentment as to refuse his daughter a privilege without which her marriage would scarcely seem valid, exceeded all she could believe possible. She was more alive to the disgrace which her want of new clothes must reflect on her daughter's nuptials, than to any sense of shame at her eloping and living with Wickham a fortnight before they took place.

- *Pride and Prejudice*, chapter 50
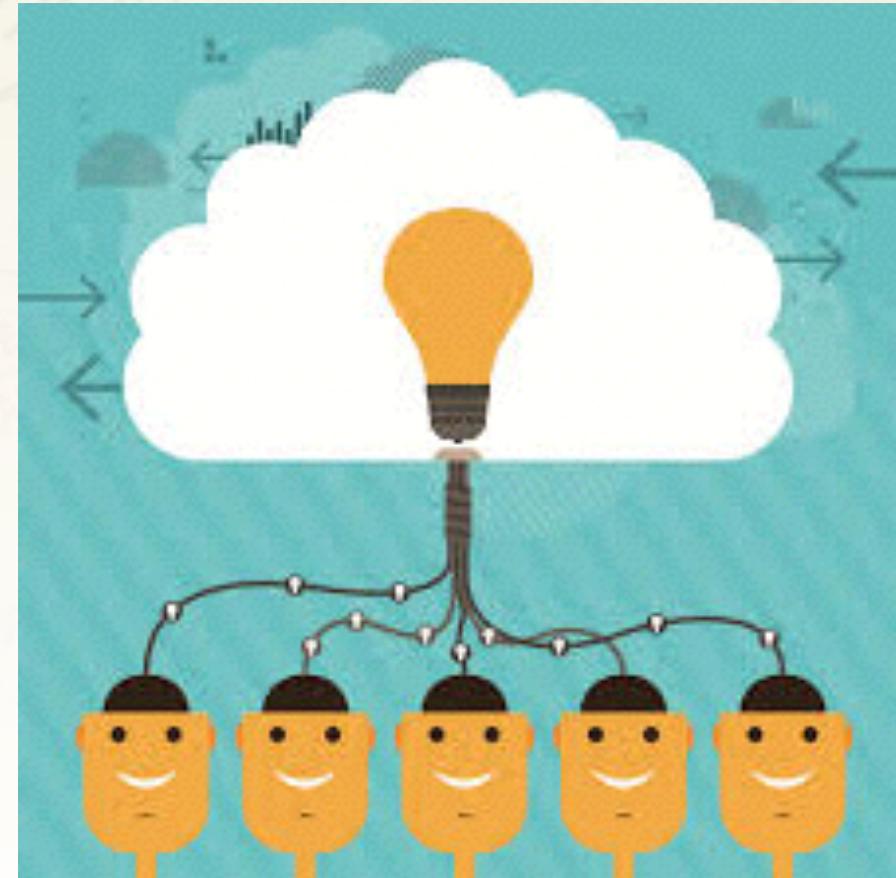
Social Network Analysis

- Social Network Analysis enjoys a long history in interdisciplinary research.

- The study of how societies behave and evolve is relevant to multiple fields.

- Ranging from sociology, to finance, to my own field of computer science, where increasingly our societies are present online just as much as they are offline.

What is a Community?

Generally, we tend to define a community as a group of people who share something in common, such as hobbies, sports, or even religious beliefs.
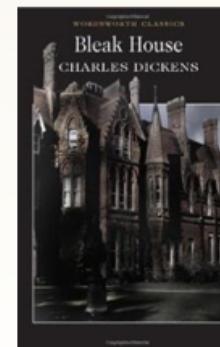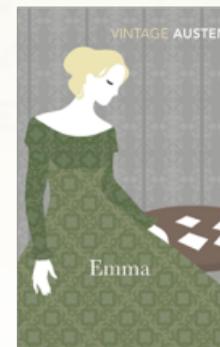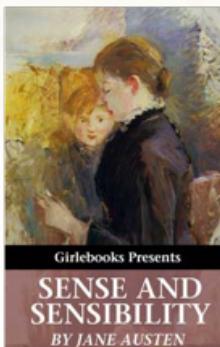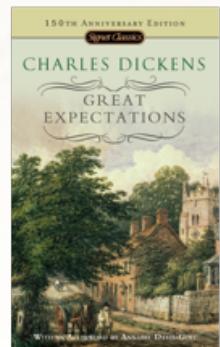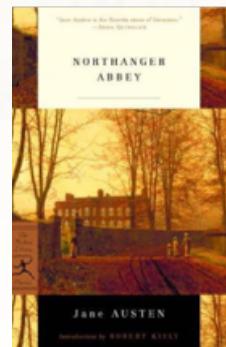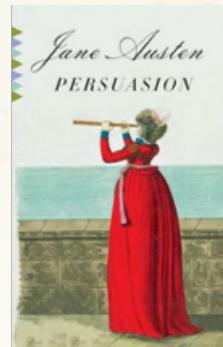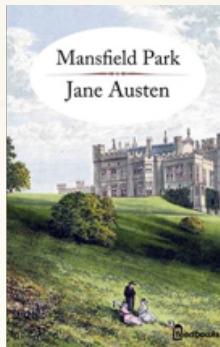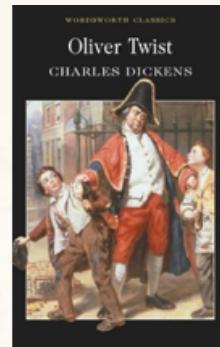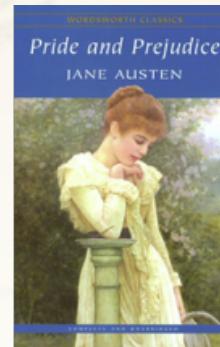
Map of Online Communities (XKCD)
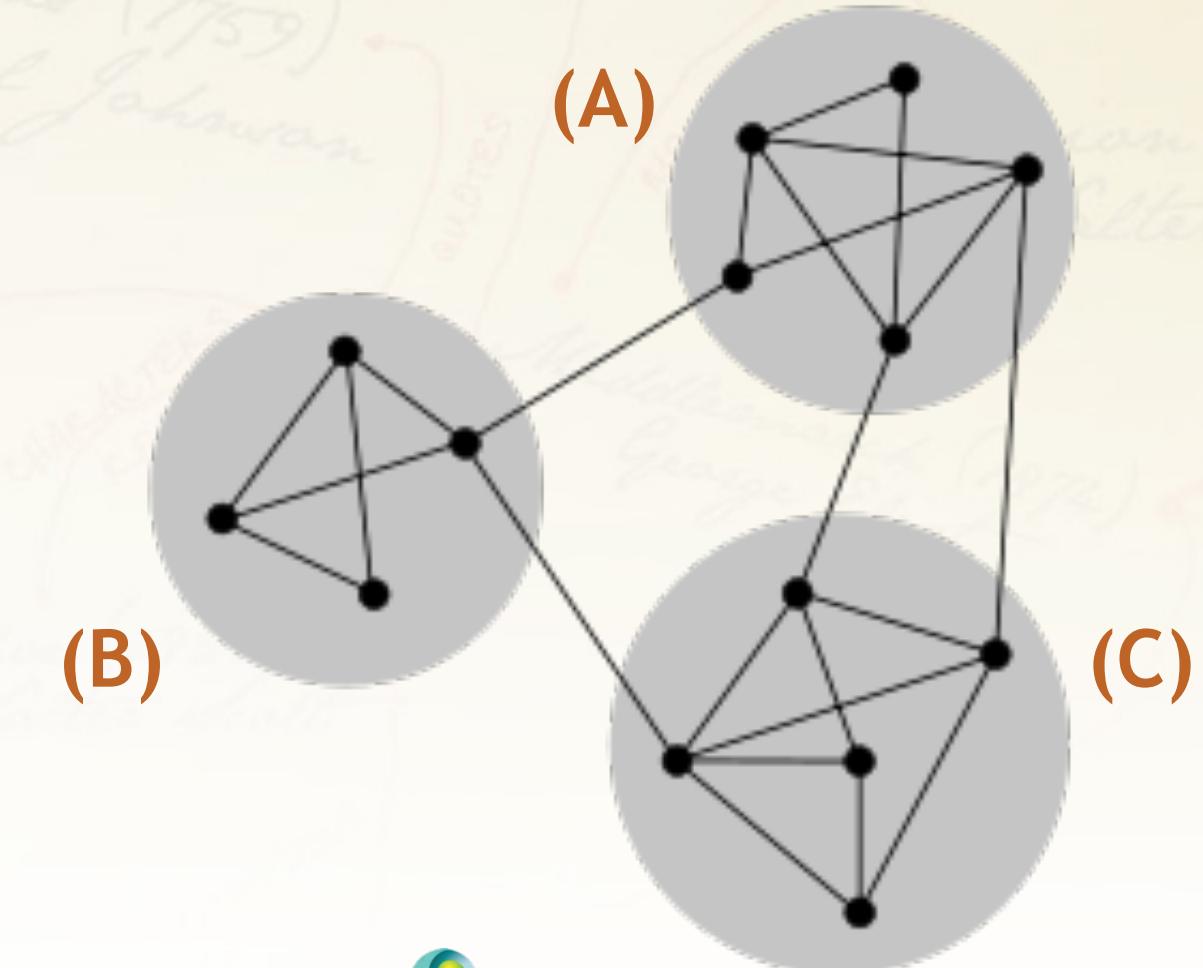
Social Network Analysis

So far, we have applied community detection techniques to character networks from several works of fiction by the authors **Jane Austen** and **Charles Dickens**.
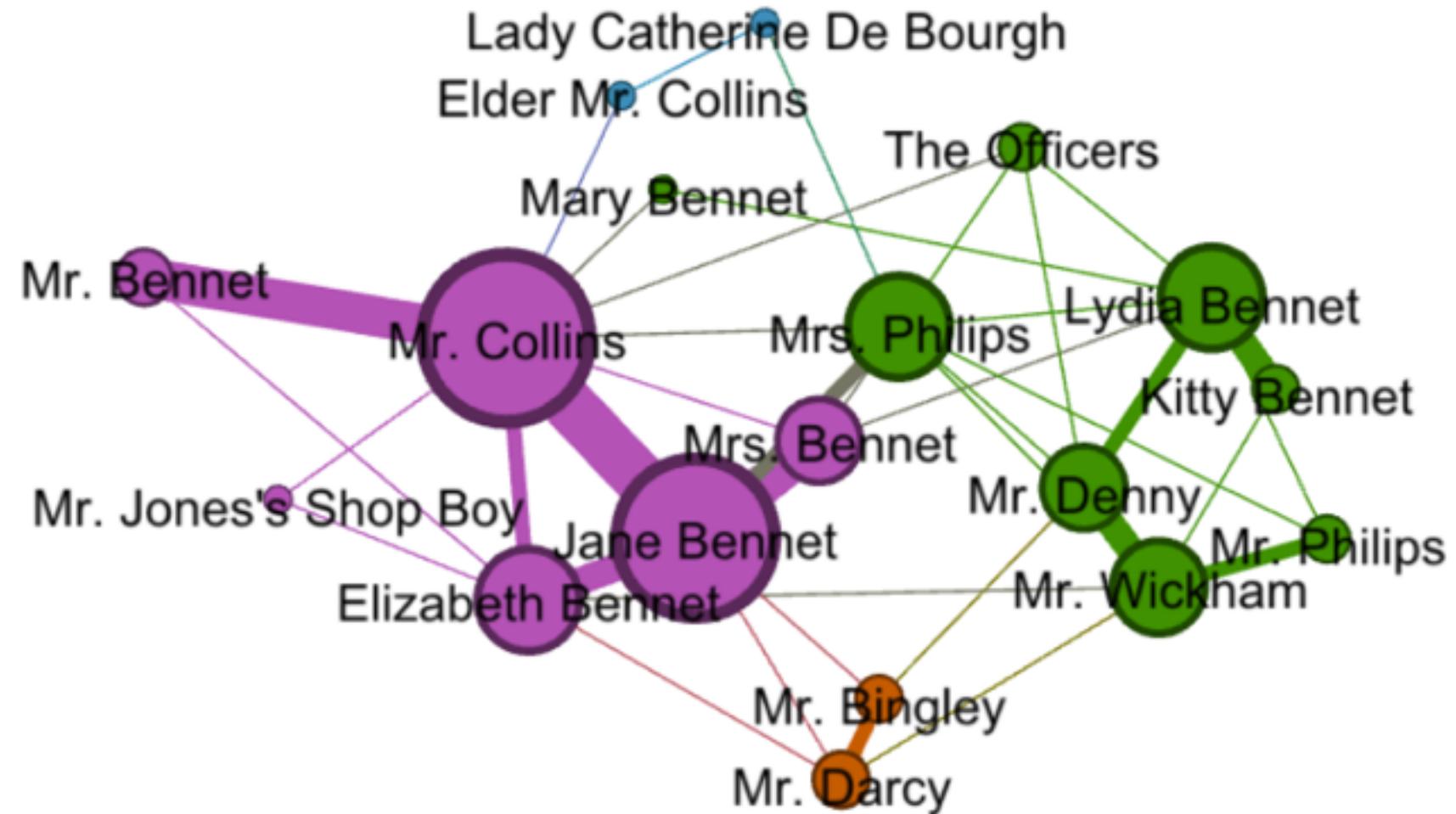
Community Detection: Modularity

Modularity detects communities by examining the structure of the network graph itself.

(A)

(B)

(C)

Modularity in Pride and Prejudice

A walk into Meryton: taking a closer look at Chapter 15:

Modularity in Pride and Prejudice
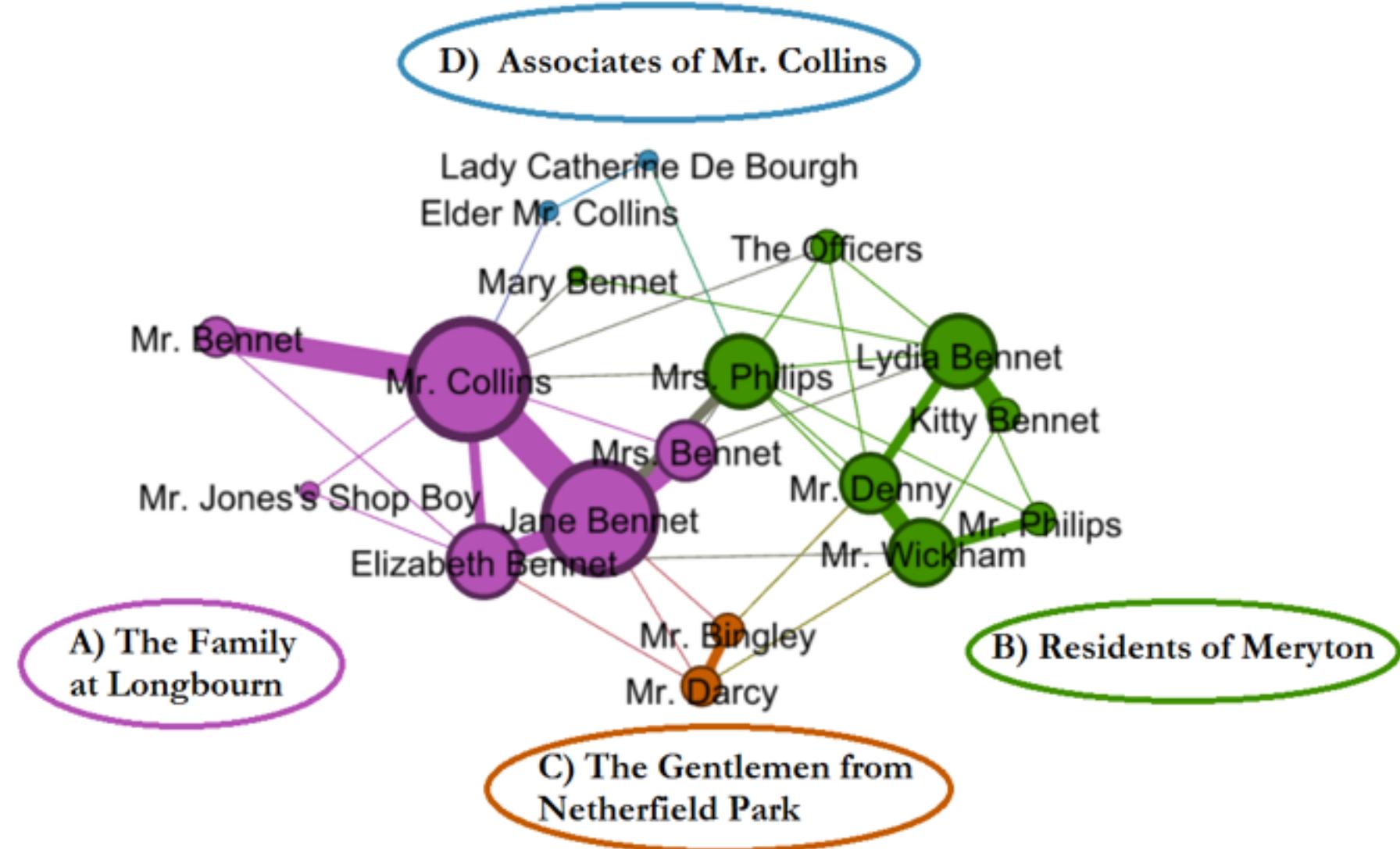
Allow me to introduce my good friend, Mr. Wickham…

https://www.youtube.com/watch?v=taGgnxSqFZk
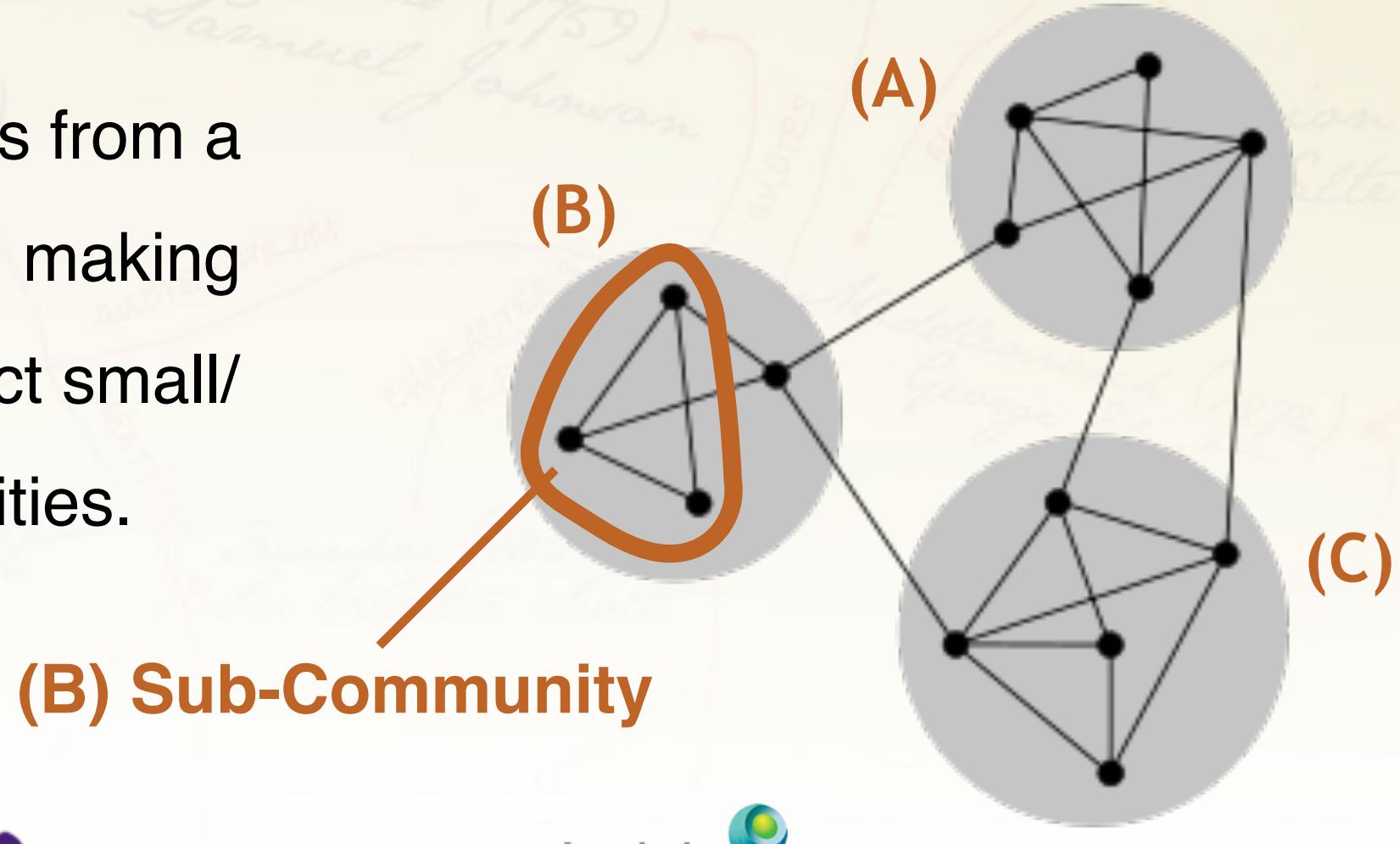
Modularity in Pride and Prejudice

Modularity

detects

characters'

tendency to

group together:
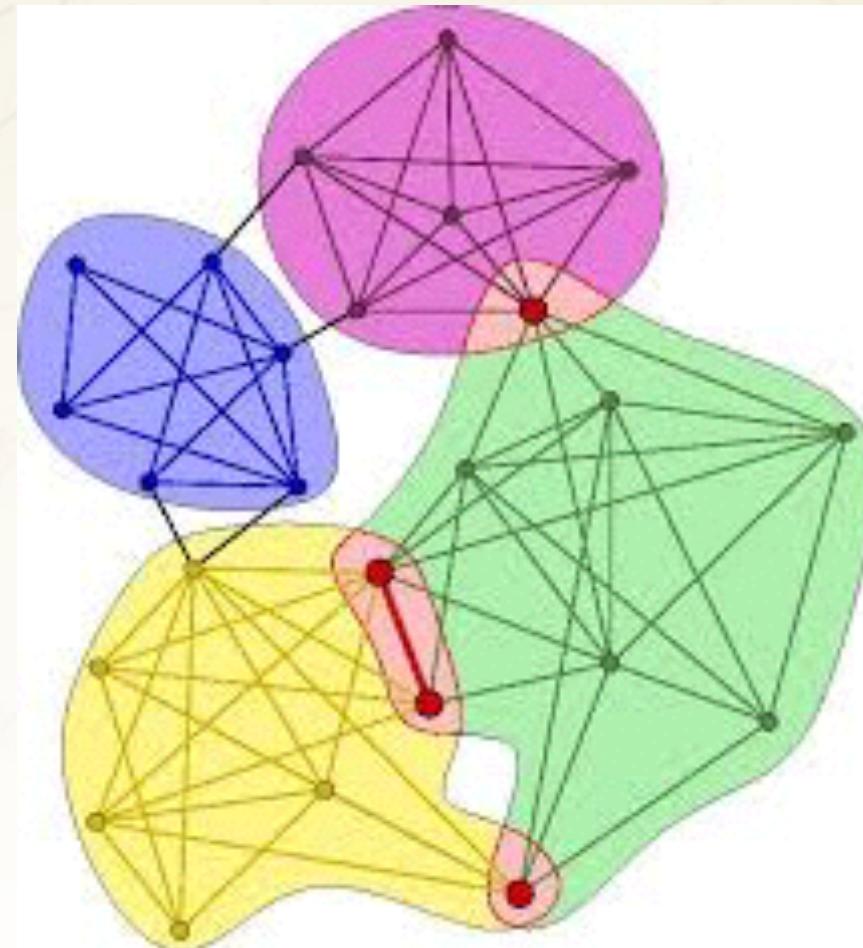
Limitations of Modularity

Modularity suffers from a **resolution limit**, making it difficult to detect small/ sub communities.

(A)

(B)

(C)
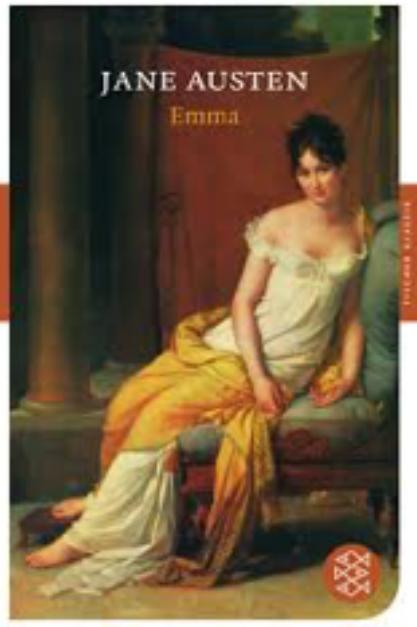
(B) Sub-Community

Community Detection: Overlapping

People don't just belong to one community, they belong to multiple communities, and this results in what is called **Overlapping Communities**.
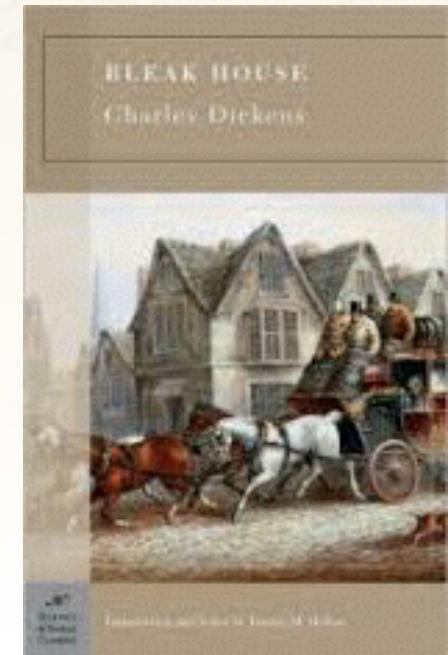
Overlapping Characters
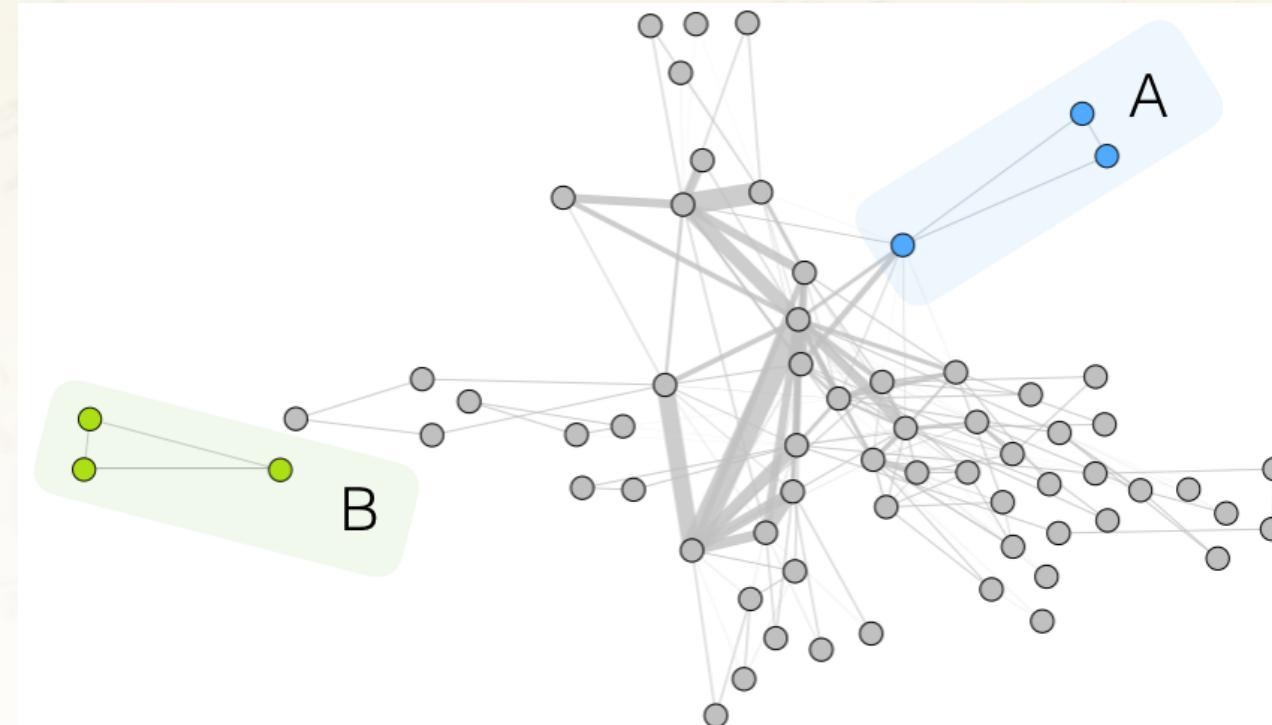
Emma Woodhouse from Jane Austen's *Emma* can be found within ten different communities.

Making **Emma the highest overlapping character**.

Bleak House by Dickens has the **highest number of characters that overlap**, with 36 characters assigned to multiple communities.

Micro-Narratives in Oliver Twist

**(A)** "A man who was hung in Jamaica", "his murdered master", "Mr. Grimwig"
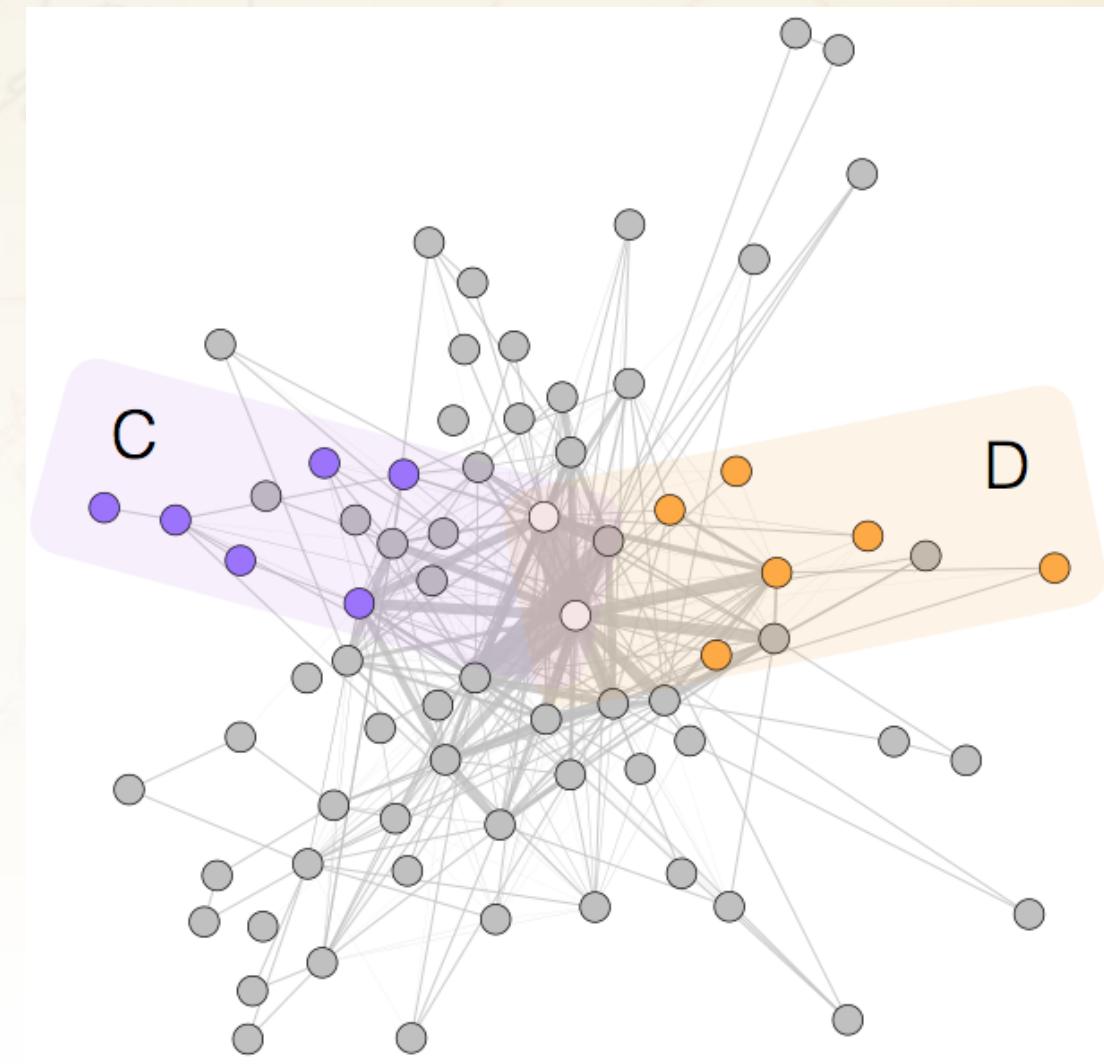
(B) "Ben", "the game-keeper", "a gentleman inside"

Social Circles in Pride and Prejudice
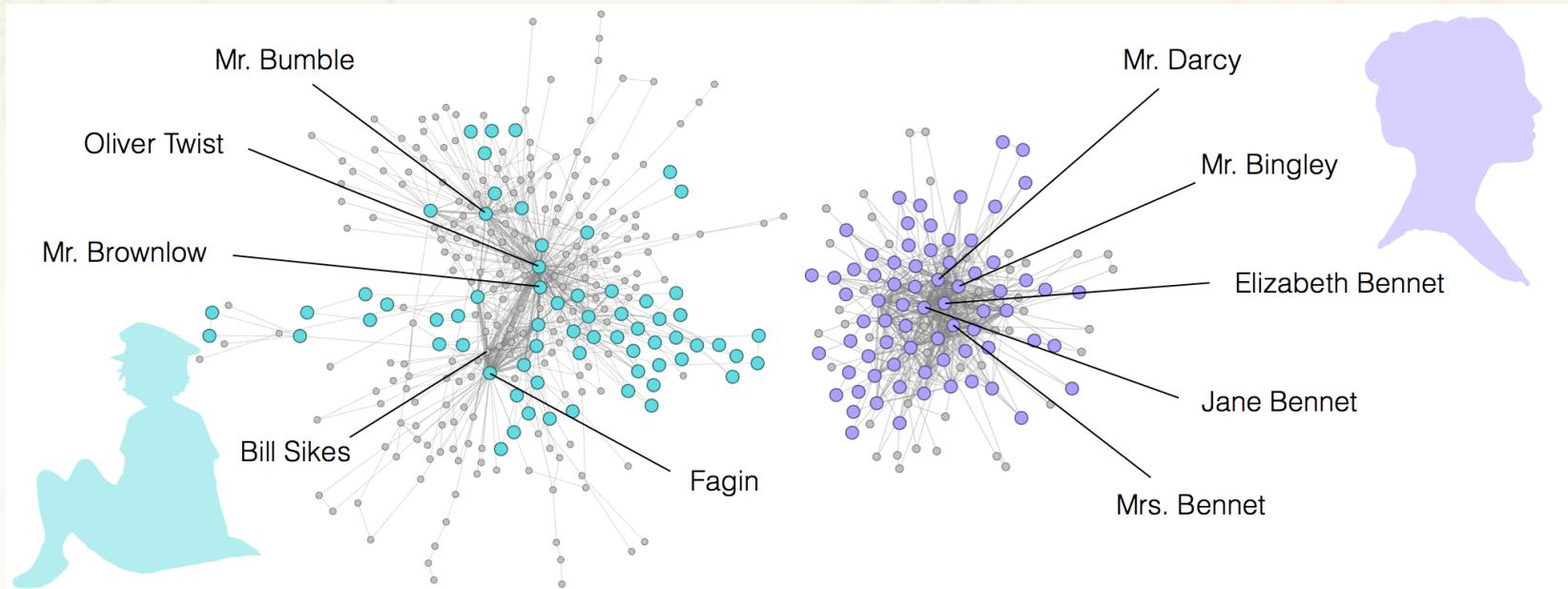
(C) "Mr. Wickham", "Wickham's Father", "Mr. Darcy", "Elder Mr. Darcy", "Elizabeth Bennet", "Mary King", "Mary King's Uncle", "Miss King's Grandfather".

(D) The only community which depicts a discrete episode (Chapter 37).

Characterisation, Narrative Style
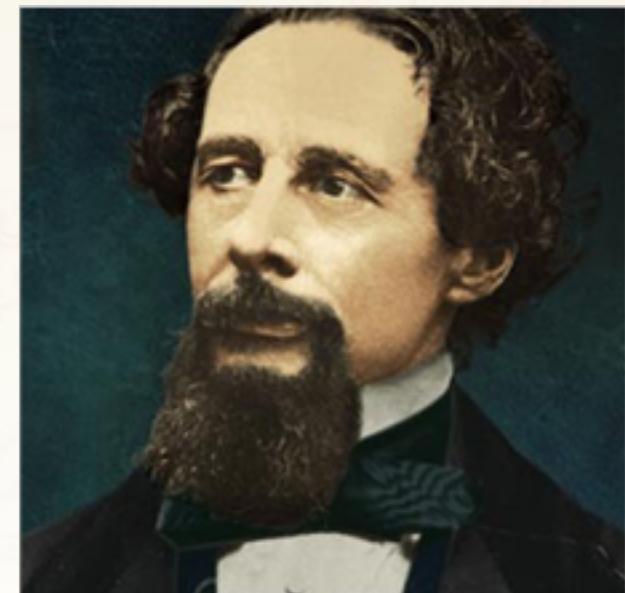
Austen: Characters are closely known to each other.

Dickens: Huge array of characters, treats the majority as prop pieces to convey another major character's morals, or as a way to add further background detail to a particular setting.

Community Detection Conclusions

The differences in the types of communities detected suggests that there are **underlying structural differences between the novels of Austen and Dickens**.

This could potentially be a useful **tool in the practice of distant reading**, providing insights into **different narrative styles**.

Part VI

The Next Step

Nation, Gender, Genre Project: Next Steps

Phase 2 - September 2016

- Phase 2 from September 2016 includes working with British Library Digital Labs on possibilities of their 19th century digital collection (**49,000 texts**)

- More detailed network analysis to uncover **high-level patterns and commonalities/contrasts** between authors or genres. Also use of character attributes and location information to create richer networks.

- Design and **deploy public user interface** to browse the corpus and explore the character networks.

Long Term Goals

Long Term - 2017

- Completion of corpus phase 2, with greater coverage of decades and genres.

- Make annotated corpus and network data available to other researchers.

- Balanced Irish and English, female and male authors, genre representation, across historical range.

- Shareable in user friendly format for researchers and students working on SNA and novel and beyond.