

Representation of female characters in the major works of Shakespeare

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1. Introduction

The context for a network analysis studying the representation of female characters in Shakespeare's major works falls within the general field of literary analysis. This specific application involves using network analysis methodologies within literature to examine the relationships, interactions, and patterns among female characters in Shakespearean plays. The analysis aims to explore the connections, roles, and influence of these characters, providing insights into their significance, relationships, and representation in Shakespeare's body of work.

The chosen Shakespeare's works are Othello, Macbeth, Hamlet and Romeo and Juliet. The work was initially divided among the members of the research group, so that each one would focus on studying a specific work through network analysis. Amelia Lamargese analyzed Othello, Alessandra Trenchi studied Macbeth, Anita Liviabella examined Hamlet, and Mirna Regolo worked on Romeo and Juliet. This division is the reason why the workflow is not the same for studying each work, which has also been influenced by the diversity of the works and the themes they cover. This diversity has given greater importance to certain information over others. The final purpose of this project is to make a comparative analysis of our results on the roles of women depicted by Shakespeare.

2. Problem and Motivation

Investigating the representation of female characters in Shakespeare's major works aims to delve into how women are depicted within the narratives. This exploration involves analyzing the portrayal of gender roles, societal norms, and power dynamics embedded in these character representations. The study examines interactions between female characters and their relationships with male counterparts, exploring themes of love, power struggles, friendships, and rivalries. It is also important to understand whether the representation of female characters offered by Shakespeare's works was consistent across his major works. This would help ascertain whether such representation aimed to construct a specific type of character functional to the plot of each specific work or if it reflected the societal notion that Shakespeare's era had formed about women in general. This analysis contributes to discussions on gender equality, societal expectations, and power structures. Additionally, it enriches academic discourse, particularly within feminist literary criticism, by providing insights into gender dynamics in literature and establishing a foundation for further research in the field of literary studies.

From a practical point of view, the starting point for this analysis is the concept of distant reading. At a general level, distant reading is an approach in literary studies that applies computational methods to literary data, usually derived from large digital libraries, for the purposes of literary history and theory. While the term is collective, and is used to refer to a range of different computational methods of analyzing literary data, similar approaches also include macroanalysis, cultural analytics, computational formalism, computational literary studies, quantitative literary studies, and algorithmic literary criticism.

Social Network Analysis can indeed be a tool for this approach, to pursue our research question which aims to understand the centrality of the female figures in the context of Shakespeare's works. The intent is to offer another point of view from the perspective of the female critique, which will emerge from the application of computational tools, involving the building of the dataset, the network, the measures, the conclusion and all the necessary steps for a complete network analysis.

3. Datasets

The data has been gathered by consulting publicly available material within various websites¹. Most of the information has been collected manually from the original text of the plays. Datasets, networks and measures are consultable at the Github repository of the project².

All the information related to characters and their attributes has been stored in Data Frames, created with the *Pandas* Python library³. The networks have been created through *NetworkX*⁴ and *GephiLite*⁵.

Different networks have been created based on different edge's types.

- For *Othello*, four different graphs were constructed, linking characters according to the following information: co-membership in social groups, co-occurrences on the scene, relationships and interactions.
- For *Hamlet*, two different graphs were constructed, linking characters according to the following information: co-occurrences in scenes and main interactions between characters. All the deduction from the results and the various interpretations can be retrieved from the co-occurrences and interactions network analysis.
- For *Macbeth*, three different graphs were constructed, linking characters according to the following information: relations between characters, co-occurrences of characters in the same scene and dialogues.
- For *Romeo and Juliet*, two different graphs were constructed, linking characters according to information about co-occurrences in scenes and interactions between the main characters.

Measures have been computed on the data through *Gephi*⁶ and *GephiLite* and *NetworkX*.

¹ For *Othello* and *Hamlet*: [Folger Shakespeare Library](#), [Playshakespeare.com](#) and [Wikipedia](#)

² <https://github.com/anitaliviabella/NetworkAnalysis>.

³ An open-source data analysis and manipulation tool

⁴ A Python library for the creation, manipulation, and study of the structure, dynamics, and functions of complex networks

⁵ A free and open-source web application to visualize and explore networks and graphs

⁶ A visualization and exploration software for all kinds of graphs and networks

4. Validity and Reliability

While conducting the network analysis, it's important to note a potential personal influence that might have affected the interpretation. Indeed, we need to be clear regarding some possible errors that could have been committed:

- Omission errors and data collection errors - being the dataset collected and built manually, the selection of information could have been influenced by personal biases or slips. Some omission errors have been a consequence of technical limitations of the software during the networks' construction, for example *GephiLite* doesn't allow the insertion of self-loops, leading to the omission of self-interactions, such as monologues or suicides, influencing the interactions' analysis.
- Node attribution errors - Marginal characters labeled as 'herald,' 'officer,' 'musician,' etc., are commonly associated with male roles. This naming convention might inadvertently bias the gender interpretation within the analysis. Acknowledging this, it's crucial to recognize that these character attributions based on professional roles could reflect a personal bias, potentially influencing the gender assignments within the network.

An interesting point of view which can be retrieved from this analysis is to understand whether the feminist critique on Shakespeare's works is coherent, extended or in contrast with the feminist critique on the works.

In Shakespeare's works, female characters play diverse and influential roles, sometimes surpassing male heroes. Critics note the complexity of these characters, often portraying young women with intelligence, vitality, and independence. While some praise Shakespeare's departure from stereotypical characterizations, others highlight negative traits in his portrayals, suggesting underlying cultural biases. Many of Shakespeare's major female characters are involved in romantic plots, facing conflicts with authority figures, notably fathers. Despite their attempts to assert independence, these heroines often find themselves subject to male control, leading to tragic consequences, such as Juliet's loss of her chosen husband or Desdemona's tragic fate at the hands of her husband, Othello.⁷

⁷ Sources: [Wikipedia](#), [eNotes](#) and [SparkNotes](#)

For what concerns Hamlet, the critique takes as subjects the two female figures of the tragedy: Queen Gertrude and Ophelia. A recurring theme is Hamlet's loss of faith in women, particularly stemming from his altered perception of Queen Gertrude, his mother. This loss of faith extends to his interactions with Ophelia and contributes to the broader exploration of gender relationships in the play. This challenges the traditional view of Gertrude as an adulteress. Moreover, feminist theories reject conventional ideas that Ophelia's madness is solely due to the absence of powerful male figures in her life. Instead, some critics propose that her madness is a result of guilt, particularly related to her desires involving Hamlet and her father's death.

The case of Macbeth is different from the others since the female characters in the play have pivotal roles in leading the main character, Macbeth, into madness. The roles of witches in "Macbeth" reflect the prevalent fear and suspicion surrounding witchcraft in the 17th century. King James⁸'s own paranoia and misogynistic beliefs, as evidenced by his views on witches and their association with women, heavily influenced the play. The witches with Hecate in "Macbeth" symbolize more than pure evil; they represent the societal perception of women who deviate from accepted norms. Lady Macbeth's character prompts reflection on the impact of women in leadership roles. As women in positions of power become more prevalent, questions arise about the extent to which their actions challenge or perpetuate existing patriarchal systems.

In "Romeo and Juliet," Shakespeare presents female characters in nuanced roles, defying stereotypes with intelligence and independence. While critics commend this departure, they note lingering cultural biases in some portrayals. The heroines, often embroiled in romantic conflicts, contend with authoritative figures, particularly fathers, as they strive for autonomy. Yet, their attempts at independence lead to tragic consequences, exemplified by Juliet's loss of her chosen husband. Juliet, emblematic of this struggle, faces familial opposition, notably from her father, Lord Capulet. Her romantic involvement with Romeo becomes a source of conflict, illustrating the challenges these heroines encounter in asserting agency. This theme of male control echoes in other tragedies like "Othello," where Desdemona's strength succumbs to her husband Othello's machinations, resulting in a tragic demise.

⁸ Context - Macbeth - AQA English Literature GCSE

In exploring Shakespeare's portrayal of female characters in "Romeo and Juliet," we encounter a rich tapestry of emotions and conflicts, shedding light on timeless themes of love and power within a patriarchal context.

The network analysis echoes established findings regarding female characters in Shakespeare's works. It underscores their pivotal roles in influencing the plot through central interactions, significantly impacting male characters' decisions. However, the analysis also reflects their marginality within social groups, portraying limited interconnections among female characters themselves. This aligns with the portrayal of female characters as influential yet relatively isolated within the broader social fabric of the narratives. The results of the network analysis will provide insights to reflect on these perspectives on female figures, as already said, from a quantitative point of view.

In conclusion, given the same conditions, if we repeated our study, we would obtain the same results, except for the possibility of enriching the analysis using a different software, which includes a greater number of functionalities for our purposes.

5. Measures and Results

Measures

Follows a brief explanation of the applied measures and why they are relevant to the research question.

- **Closeness centrality** assesses how close a node is to all other nodes in the network. It measures the reciprocal of the average shortest path distance from a node to all other nodes in the network. Nodes with higher closeness centrality values are considered to have a more influential position within the network due to their ability to efficiently interact or disseminate information to other nodes in fewer steps, so it is useful to understand which female characters are closely connected to others, indicating their **impact and influence** within the narrative.
- **Degree centrality** of a node counts the number of edges connected to it. It helps identify which female characters are more connected, suggesting their importance, social involvement, and potential as **key figures** of the narrative.
- **Eigenvector centrality** is a measure in network analysis that not only considers the number of connections a node has (like degree centrality)

but also takes into account the importance of the nodes to which it is connected. In essence, it assesses the influence of a node in a network based on the quality of its connections rather than just the quantity. It reveals characters who might not have numerous connections but have connections to crucial or central characters in the network. These characters might have ***indirect but substantial influence*** within the narrative.

- **Katz centrality** is another measure used in network analysis that evaluates the importance or centrality of a node within a network by considering not only its direct connections but also its indirect connections through paths of varying lengths. It takes into account not just immediate connections but also the ***influence that spreads through longer chains*** of relationships, potentially capturing characters whose impact might not be immediately apparent but extends deeply into the network.
- **Betweenness centrality** measures the extent to which a node (in this case, a female character) serves as a bridge or intermediary between other nodes in a network. It quantifies the number of times a particular node lies on the shortest paths between pairs of other nodes in the network. Characters with high betweenness centrality may have significant control over the flow of information, relationships, or influence between different groups of characters. This measure can highlight characters who play ***pivotal roles in communication or interactions*** within the play.
- The **average clustering coefficient** in network analysis measures the degree to which nodes in a network tend to cluster together. It quantifies the likelihood that the neighbors of a node are also connected to each other. It provides insights into how female characters are embedded in ***social structures*** within the plays. High clustering might indicate cohesive social circles, while low clustering could suggest a more dispersed or disconnected social environment.
- **Components** refer to groups of nodes (or characters in this context) within a network that are connected to each other through paths, while being disconnected from nodes in other groups. Female characters that do not belong to any component might be entirely isolated from others or have minimal interactions within the narrative, which could be significant in understanding their roles or ***societal positioning***.

- **Density** measures the completeness of connections between nodes in a network. It quantifies the proportion of actual connections present in the network compared to the total number of possible connections. A higher density suggests a more interconnected network, where female characters are more likely to be directly connected to each other. This might indicate a cohesive social structure or a storyline where *characters are closely intertwined*.
- **Modularity** is a measure that assesses the division of a network into distinct and densely connected groups or communities. In the study of female characters in Shakespeare's plays, modularity analysis could reveal natural groupings or clusters among these characters, highlighting *cohesive subsets* within the narratives.
- The **diameter** of a network is the longest shortest path between any pair of nodes. In the context of Shakespeare's plays, the diameter could represent the maximum *distance* or number of interactions needed for information or influence to travel *between* any two female *characters*.
- **Assortativity:** network analysis refers to the tendency of nodes in a network to connect with other nodes that have similar characteristics. In other words, it measures the degree to which nodes with similar attributes or properties are more likely to be connected to each other within the network.
- **Degree distribution:** in a network describes the probability distribution of the number of connections (degrees) that nodes have. In simple terms, it indicates how common different degrees are across all nodes in the network. A power-law degree distribution is often observed in scale-free networks, where a few nodes have significantly more connections than the majority, creating a heterogeneous distribution. In contrast, a more uniform or random distribution of degrees is characteristic of networks with a regular structure.
- The **transitivity** measure in a network or graph context quantifies the likelihood that if node A is connected to node B and node B is connected to node C, then there is also a connection between nodes A and C. It measures the tendency for interconnected nodes to form triangles or closed loops within the network. High transitivity suggests a clustering of connections, while low transitivity indicates a more dispersed network structure.

- The **Jaccard coefficient** is a measure of similarity between two sets. It is defined as the size of the intersection of the sets divided by the size of the union of the sets.

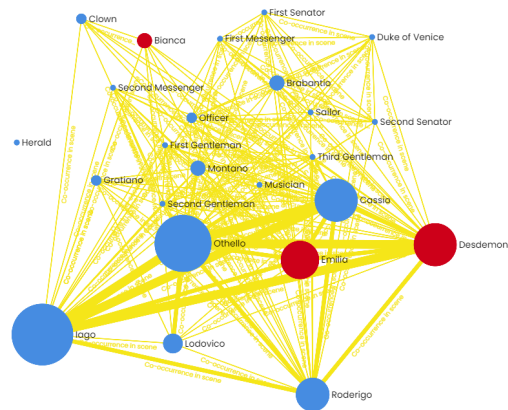
A brief introduction about the research design

The study group has worked on a personal network research design, because the focus of the study regards a set of nodes, the egos, which in this context are the female characters' nodes. The study is based on the construction and analysis of simple networks, meaning that the graphs don't include self-edges or multi-edges, and it was a necessary choice due to the impossibility of constructing multigraphs with *Gephi*. This latter is also the reason why most of the graphs are undirected. To facilitate a better and more immediate visualization of nodes representing female characters, node color was distinguished based on the '*gender*' attribute.

Othello results

Even in an initial observation of the graphs, the stark numerical minority of female nodes (in red) is noticeable, with only 3 identified in the work of *Othello*, compared to the 21 male characters (in blue).

Co-occurrences (24 nodes, 140 edges): an indirect network which links the characters who are in the same scene of the play. The size of the nodes reflects the number of individual appearances, because besides the number of co-appearances, already computed with the degree, it is important to show the general presence of a character in the play. The network is connected because it only has one component. In this graph, the edges are weighted, but the numerical values of weights have been standardized by assigning a weight of 1 to edges with values 1, 2, and 3, a weight of 2 to those with values 4, 6, and 7, and finally a weight of 3 to values 8, 9, and 11, because the values varies too much and they couldn't be represented visually on the network.



- Average Clustering Coefficient: 0,864. Total triangles: 433
- Average Weighted Degree: 14,167
- Number of Weakly Connected Components: 2. One component is only made by one isolated node (“Herald”), while the other one connects all the remaining nodes.
- Density: 0,507
- Diameter: 2. Radius: 0. Average Path length: 1.4505928853754941
- Modularity: 0,163. Modularity with resolution: 0,163. Number of Communities: 3

The network demonstrates a moderate density (0.507) reflecting the overall frequency of character co-occurrences within scenes. High clustering coefficients and numerous triangles suggest strong tendencies for characters, including females, to frequently appear together within scenes, potentially forming cohesive clusters or thematic associations.

The average weighted degree (14.167) signifies the average strength of character co-occurrences within scenes, while the network's structural features, such as the presence of weakly connected components and short average path lengths, indicate efficient co-occurrences among characters within the context of scenes.

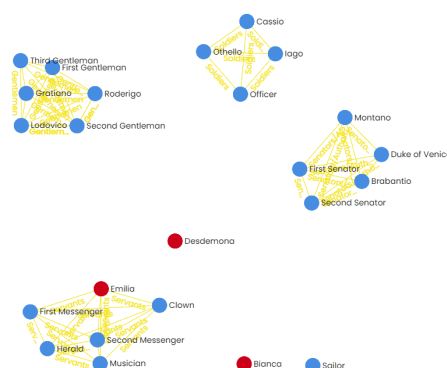
Moreover, the network's modularity (0.163) highlights structural divisions or thematic clusters based on character co-occurrences within scenes, providing a nuanced understanding of the relationships and associations among female characters and others in the theatrical context of Shakespeare's plays.

Regarding the **centrality** measures, the results have been sorted in a decrescent order:

- *Desdemona* is placed in the third position according to degree centrality (value 0.913), closeness centrality (0.914), betweenness centrality (0.084) and eigenvector centrality (0.311); second position for the katz centrality (0.332) and fourth position for the individual appearances (9).
- *Emilia* has the 6th position according to degree centrality (0.652), closeness centrality (0.726), betweenness centrality (0.027), eigenvector centrality (0.231) and katz centrality (0.232); and fifth position for the individual appearances (8).
- *Bianca* holds the 21st position for degree centrality (0.391), closeness centrality (0.601), eigenvector centrality (0.161) and katz centrality (0.146); eleventh position for betweenness centrality (0.001), and tenth position for the individual appearances (3).

Relatively high centrality measures for female nodes (at least, Desdemona and Emilia) in a network of co-occurrences suggest that these characters are highly connected, influential, or strategically positioned within the context of character interactions and appearances in scenes within Shakespeare's works and maintaining a high position in a ranked list of nodes, indicating greater significance compared to many male nodes.

Co-membership (24 nodes, 48 edges): undirected network which links the characters according to the social group to which they belong for professional reasons or status (Soldiers, Servants, Gentlemen, Senators).



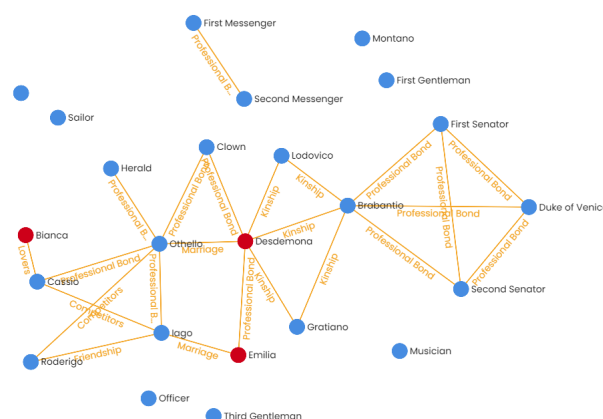
- Total number of cliques: 4, one of which includes a female node. This latter is also a 5-core and a 5-component.
- Average Clustering Coefficient: 1,000. Total triangles: 54
- Number of Weakly Connected Components: 7
- Density: 0,174
- Diameter: 1. Radius: 0. Average Path length: 1.0

- Modularity: 0,718. Modularity with resolution: 0,718. Number of Communities: 7

Overall, these metrics indicate a highly clustered network with distinct community structures, where nodes have strong connections within their respective groups and relatively weaker connections between different groups based on their social and professional memberships. The *Emilia* node has strong and consistent connections within a specific subset of nodes and belongs to a highly connected subgraph where nodes are reachable through short paths (5-component), so she likely holds a significant role in fostering interactions, information flow, or relationships within this subset and contributes to the cohesion and connectivity of the overall network, in the context of social groups.

Regarding the **centrality** measures, each node of the components shares the centrality values with the other members of the same subsets. The *Emilia* node is part of the component with the highest centrality values, while *Desdemona* and *Bianca* are two out of the three nodes which hold the lowest centrality values in the network. The discrepancy in centrality values among the interest nodes implies varying degrees of involvement or representation within the social and professional groups in the network, possibly reflecting the different levels of information available or depicted about these characters' affiliations in Shakespeare's works.

Relations (24 nodes, 25 edges): undirected network which represents kinships, professional bonds and affective relationships (friendships, marriages). There's one biggest clique, which doesn't include a female node, but Desdemona and Emilia take part in more than one k-cores and k-components.

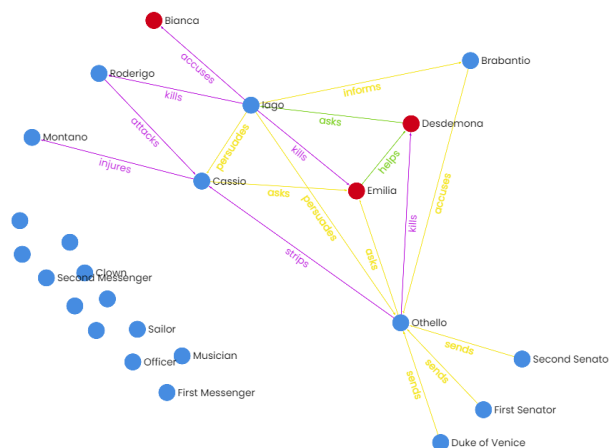


- Average Clustering Coefficient: 0,633. Total triangles: 9
- Number of Weakly Connected Components: 9
- Density: 0,091
- Diameter: 5. Radius: 0. Average Path length: 2.3962264150943398
- Modularity: 0,440. Modularity with resolution: 0,440. Number of Communities: 11

Desdemona holds the first position for closeness and betweenness centrality and the second position in terms of degree and eigenvector centrality, while Emilia has lower values, but still keeping a placement in the upper half of the list. Bianca, on the other hand, has low values, under the middle of the list, but not among the last nodes.

The **centrality** measures, along with the network's structural characteristics, illustrate that Desdemona emerges as a central and influential character, potentially mediating interactions and accessing information efficiently. Emilia follows with a notable role, while Bianca maintains a moderate level of engagement within the network. Their positions within the network's structure provide insights into their connectivity, influence, and roles in the relationships portrayed in the narrative.

Interactions (24 nodes, 19 edges): the only directed network among those built for the analysis of Othello.



In this network, *Desdemona* and *Emilia* are part of multiple k-cores and k-components, meaning that they play a central role within the interactions' context of the play and consequently they are fundamental for the

development of the plot. *Emilia* seems to be one of the most important nodes here.

- Average Clustering Coefficient: 0,103
- Number of Weakly Connected Components: 13. Number of Strongly Connected Components: 18
- Density: 0,034
- Diameter: 5. Radius: 0. Average Path length: 2.5301204819277108
- Modularity: 0,123. Modularity with resolution: 0,123. Number of Communities: 14

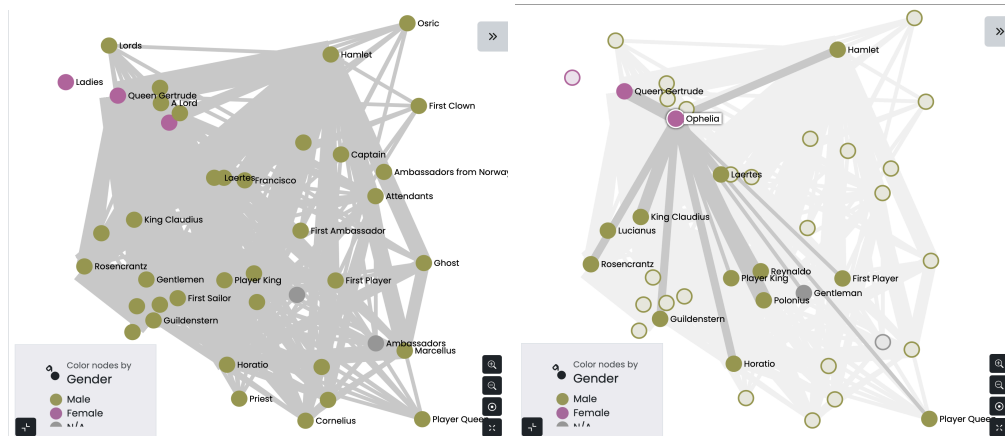
Emilia keeps the fourth position for degree, closeness and betweenness **centrality**, while having a third position for the eigenvector centrality value. *Desdemona* holds one of the highest positionings within the list of the centrality results, but still lower than Emilia's. *Bianca* reveals low values, but still not the worst ones.

Overall, Emilia appears to be a central and influential character within the network, while Desdemona holds a significant role, albeit slightly less central than Emilia. Bianca, while not as prominent, still maintains some level of involvement within the interactions portrayed in the play. These centrality positions provide insights into the characters' connectivity, influence, and roles within the narrative structure of the play.

Hamlet's results

In the process of building the network, it was clear that in the tragedy there are only two female characters (other than the ladies in the court, that are just back-ground characters and they do not interact with anyone): Queen Gertrude and Ophelia, the rest of the nodes are male characters. Ophelia is a well-known character and it has been influential in the future for artists, musicians, directors and so on. So, it's interesting to analyze from a quantitative point of view her centrality in the networks.

1. **Co-occurrences graph (41 nodes, 233 edges)**: this graph represents the co-occurrences between characters defined in the *co-occurrences dataset*. The nodes are the characters names, while the edge defines a co-occurrence in a scene and based on the number of times of co-occurrences, the weight of the edge increases.



General results

- Density: 0.2841463414634146
- Assortativity: -0.3198958389079025
- Degree distribution: {'Hamlet': 31, 'King Claudius': 29, 'Queen Gertrude': 30, 'Horatio': 31, 'Polonius': 22, 'Laertes': 21, 'Ophelia': 14, 'Bernardo': 14, 'Francisco': 6, 'Marcellus': 14, 'Ghost': 8, 'King Fortinbras': 6, 'Voltimand': 16, 'Lords': 11, 'Attendants': 16, 'Rosencrantz': 18, 'Guildenstern': 18, 'Ambassadors from Norway': 0, 'Players': 11, 'First Player': 16, 'Reynaldo': 2, 'Lucianus': 11, 'Player King': 11, 'Player Queen': 11, 'Captain': 4, 'Gentlemen': 0, 'Servant': 2, 'First Sailor': 2, 'First Clown': 7, 'Second Clown': 7, 'Priest': 7, 'First Ambassador': 8, 'Osric': 8, 'A Lord': 8, 'Cornelius': 16, 'Messenger': 3, 'Fortinbras': 11, 'Ladies': 0, 'Sailors': 0, 'Ambassadors': 11, 'Gentleman': 5}
- Transitivity: 0.6088076229719289
- Average Clustering Coefficient: 0.7608570140391723. Total triangles: 788.0

Results on female characters

- Jaccard coefficient co-occurrences: 0.375

1. Queen Gertrude:

Degree centrality: 0.75

Betweenness centrality: 0.08

Closeness centrality: 0.77

Communities: 7

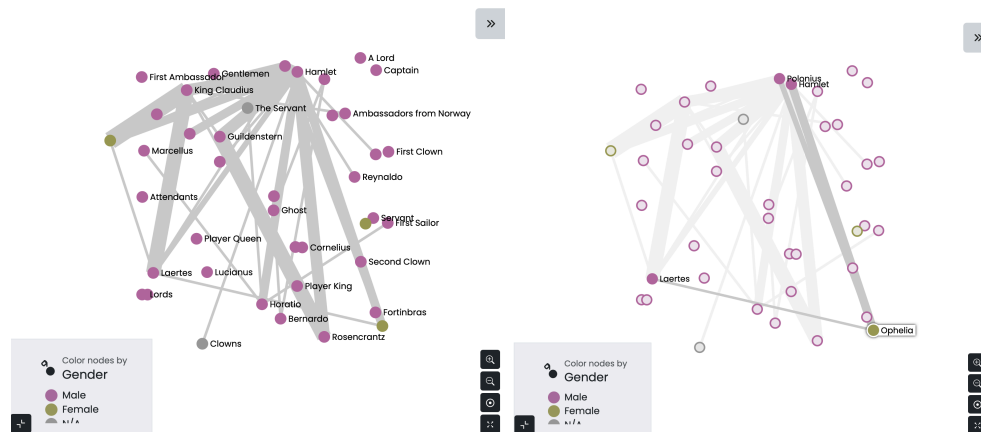
Local clustering coefficient: 0.42

Eigenvector centrality: 0.29

2. Ophelia:

Degree centrality: 0.35
 Betweenness centrality: 0.019
 Closeness centrality: 0.558
 Communities: 2
 Local clustering coefficient: 0.71
 Eigenvector centrality: 0.165

2. **Interaction graph (nodes 41, edges 37):** in this graph the nodes are, once again, the characters names and the edges represent the interactions which are defined in the *interaction dataset*, the weights works in the same way as in the co-appearances graph.



General results

- Density: 0.045121951219512194
- Assortativity: -0.30105468909068706
- Degree distribution: {'Hamlet': 16, 'King Claudius': 10, 'Queen Gertrude': 4, 'Horatio': 4, 'Polonius': 6, 'Laertes': 5, 'Ophelia': 3, 'Bernardo': 2, 'Francisco': 2, 'Marcellus': 1, 'Ghost': 3, 'King Fortinbras': 0, 'Voltimand': 0, 'Lords': 0, 'Attendants': 0, 'Rosencrantz': 3, 'Guildenstern': 3, 'Ambassadors from Norway': 1, 'Players': 1, 'First Player': 1, 'Reynaldo': 1, 'Lucianus': 0, 'Player King': 0, 'Player Queen': 0, 'Captain': 0, 'Gentlemen': 0, 'Servant': 0, 'First Sailor': 1, 'First Clown': 0, 'Second Clown': 0, 'Priest': 0, 'First Ambassador': 0, 'Osric': 1, 'A Lord': 0, 'Cornelius': 0, 'Messenger': 1, 'Fortinbras': 1, 'Ladies': 0, 'Sailors': 0, 'The Servant': 1, 'Clowns': 3}
- Transitivity: 0.3176470588235294

- Average Clustering Coefficient: 0.19777986241400872. Total triangles: 18.0

Results on female characters

- Jaccard coefficient interactions: 0.75
- 1. **Queen Gertrude:**
 - Degree centrality: 0.1
 - Betweenness centrality: 0.0
 - Closeness centrality: 0.25
 - Communities: 1
 - Local clustering coefficient: 1.0
 - Eigenvector centrality: 0.28
- 2. **Ophelia:**
 - Degree centrality: 0.075
 - Betweenness centrality: 0.0
 - Closeness centrality: 0.25
 - Communities: 8
 - Local clustering coefficient: 1.0
 - Eigenvector centrality: 0.20

General measures and results in both networks:

The analysis of the networks in "Hamlet" reveals distinct patterns in both co-occurrences and interactions among characters. In the co-occurrences network, approximately 28% of potential connections exist, indicating a moderate interconnectivity among characters in scenes. Conversely, the interactions network displays a lower **density** of 0.045, suggesting a more dispersed pattern in character interactions.

Assortativity coefficients in both networks are negative (-0.32 for co-occurrences and -0.30 for interactions), signaling a preference for characters with differing degrees to connect. This negative assortativity contributes to a diverse and heterogeneous network structure.

Examining the **degree distribution**, Hamlet, King Claudius, and Queen Gertrude emerge as central characters in both networks, with high degrees signifying frequent co-occurrences and active participation in interactions.

Transitivity values offer insights into network cohesion. The co-occurrences network exhibits a higher transitivity of 0.61, indicating a cohesive grouping among characters who co-occur in scenes. In contrast, the interactions

network has a lower transitivity of 0.32, suggesting a less interconnected structure in terms of character interactions.

The measures you've provided are related to network analysis, specifically in the context of graphs. Let's break down each measure and discuss their interpretations:

The **average clustering coefficient** the high value (0.76) suggests that nodes in this network of co-occurrences are well-connected in clusters, indicating a relatively high degree of local interconnectedness.

For the network of Interactions, the lower value (0.198) suggests that nodes in this network are less likely to form tight clusters, indicating a lower degree of local interconnectedness compared to the first network.

For the co-occurrences, the high number of **triangles** (788) indicates a significant level of transitivity, suggesting that nodes in this network tend to form triangles more frequently.

For the network of interactions, the lower number of triangles (18) suggests a lower level of transitivity, indicating that nodes are less likely to form triangles compared to the first network.

In summary, the analysis provides a comprehensive understanding of the structural characteristics of the co-occurrence and interaction networks in "Hamlet," emphasizing diversity, central characters, and varying levels of cohesion within the narrative.

Measures and results on female characters:

For what concerns our analysis on the centrality of the female figure on Shakspeare works, the focus is shifted on the nodes representing **Queen Gertude** and **Ophelia** in the networks of co-occurrences and interactions, the values are interpreted in relation to the results of the other characters.

In the **co-occurrence** network of Shakespeare's "Hamlet," **Queen Gertrude** stands out with a notable **degree centrality** of 0.75, emphasizing her extensive connections with various characters. This suggests her involvement in numerous scenes or interactions within the play. Additionally, her moderate **betweenness centrality** (0.0805) indicates that she plays a significant role in connecting different characters, further underscoring her influence in the social fabric of the play. Queen Gertrude's high **closeness centrality** (0.7714) implies that she is closely connected to other characters, facilitating swift information transmission through the network. As a member of **community 1**, she belongs

to a subgroup, and her high local **clustering coefficient** (0.4207) suggests a cohesive local network around her. In terms of **eigenvector centrality**, Queen Gertrude's moderate value reinforces her influential position through both connections and associations with other influential nodes.

On the other hand, **Ophelia**, while having a lower **degree centrality** (0.35) compared to Queen Gertrude, still maintains connections with other characters in the co-occurrence network. However, her relatively low **betweenness centrality** (0.0198) suggests a limited role as an intermediary in communication paths. Ophelia's lower **closeness centrality** (0.5586) implies that she is not as closely connected to other characters in terms of direct communication paths. Belonging to **community 2**, Ophelia represents a specific subgroup in the network, which is different from Queen Gertrude, and her high **local clustering coefficient** (0.7143) indicates well-interconnected immediate connections. The lower **eigenvector centrality** aligns with her lower centrality measures, emphasizing her position as a character with complexities beyond traditional portrayals.

Network of interactions: The gender and the role in the story have been specified in the dataset at the beginning of the process. Their neighbors have been computed and we can see that **Queen Gertrude** (contagionist) interacts with Hamlet (protagonist), King Claudius (antagonist), Polonius (confidant) and Laertes (foil).

Ophelia (love interest) interacts with Hamlet (protagonist), Polonius (confidant) and Laertes (foil). Consequently, we can affirm that they have interactions with practically the same characters and basically the same roles. A **Jaccard coefficient** of 0.75 suggests a relatively high level of overlap in their interactions. Since the coefficient ranges from 0 (no overlap) to 1 (complete overlap), a value of 0.75 indicates that 75% of the interactions are common between Queen Gertrude and Ophelia. On the other side, there is a lower and moderate level of similarity between the two sets in the network of co-occurrences.

In the **network of interactions**, both **Queen Gertrude** and **Ophelia** exhibit lower **degree centralities** (0.1 and 0.075, respectively), indicating relatively low degrees of connectivity. Their **betweenness centralities** are also low (0.0), signaling limited roles as intermediaries in communication paths. Queen Gertrude's low **closeness centrality** (0.2689) suggests a less immediate

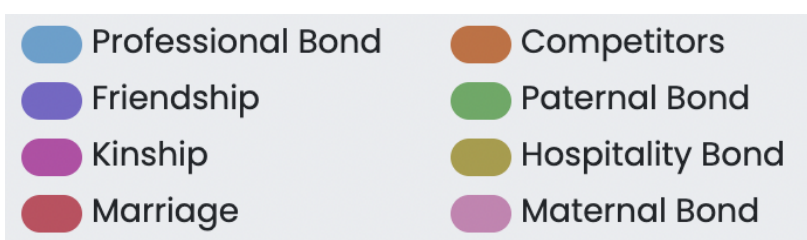
connection to the overall network, while Ophelia's **closeness centrality** (0.2521) is similarly low, indicating a lack of immediate closeness to other characters in terms of the shortest paths. Both characters belong to **community 2**, indicating a similar subgroup. However, Queen Gertrude's **local clustering coefficient** is 1.0, indicative of a cohesive local network around her, while Ophelia's coefficient is also high at 1.0, underscoring well-interconnected immediate connections. In terms of **eigenvector centrality**, Queen Gertrude maintains a moderate influence, while Ophelia's higher **eigenvector centrality** in the interaction network suggests she may have more influence in this broader context compared to the co-occurrence network.

The results of the network analysis offer a quantitative perspective on the centrality of female figures in "Hamlet," particularly Queen Gertrude and Ophelia. The prominence of Queen Gertrude in the co-occurrence network aligns with her significant presence and involvement in various scenes, reinforcing her role in the play's social dynamics. Her influence, as indicated by centrality measures, resonates with feminist critiques challenging traditional views of Gertrude as a mere adulteress.

However, the analysis also highlights the complexities of Ophelia's position. While her centrality measures are lower than Queen Gertrude's, the results suggest a nuanced portrayal of Ophelia with connections and interactions within specific subgroups. This aligns with feminist theories rejecting simplistic explanations for Ophelia's madness and emphasizes the intricate dynamics of her character. The Jaccard coefficient of 0.75 supports the affirmation that Queen Gertrude and Ophelia have interactions with practically the same characters and basically the same roles.

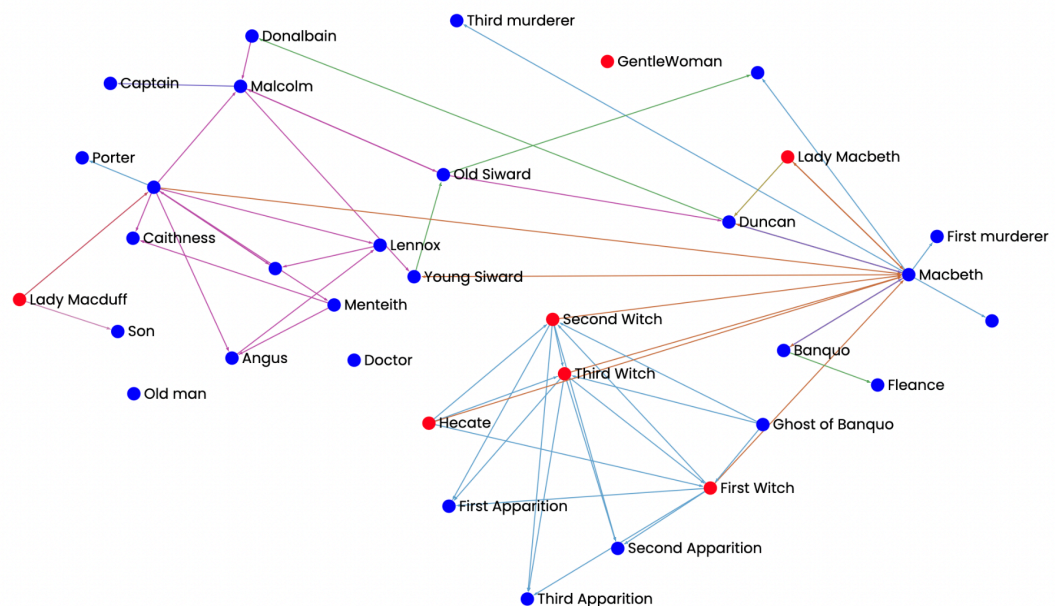
Macbeth results

Relations.py



Nodes: 34

Edges: 60



Lady Macbeth has a relationship marriage with Macbeth, but apart from that she doesn't have connections with the other female nodes.

Closeness Centrality: 0.1785

Lady Macbeth:

Lady Macbeth exhibits a high degree of centrality, with a significant closeness centrality of 0.1785, indicating strong connectivity in the network. This suggests that information or influence can efficiently spread through Lady Macbeth. Her degree centrality of 0.0909 implies that Lady Macbeth is directly connected to about 9.1% of other women nodes, portraying her central position without dominance. A high eigenvector centrality of 0.2311 underscores Lady Macbeth's connectivity to nodes with high influence. Katz centrality of 0.1661 further emphasizes Lady Macbeth's importance in the network. A betweenness centrality of 0 indicates that Lady Macbeth does not play a crucial role as a bridge between different parts of the network.

First Witch and Third Witch:

Both witches share a moderate closeness centrality of 0.097, indicative of connectivity in the network. Their high degree centrality of 0.2424 suggests direct connections to approximately 24.2% of other women nodes, highlighting

significant roles in terms of connections. The low eigenvector centrality indicates that the witches are not well-connected to nodes with high influence. Katz centrality (0.1809) reflects their moderate influence in the network. Betweenness centrality (0.0073) suggests a moderate role as bridges between different network parts.

Second Witch:

Second Witch has lower connectivity with a degree centrality of 0.0303, indicating direct connections to approximately 3% of other women nodes. Her betweenness centrality of 0 suggests a limited role as a bridge in the network. Closeness centrality is 0, indicating a moderate level of proximity to other nodes. The very low eigenvector centrality implies a minimal level of influence. Belonging to Community 2 and Clique Membership 15 suggests a specific role within the network.

Hecate:

Hecate shares similar characteristics with Second Witch in terms of centrality measures, indicating moderate connectivity and influence. Community 2 and Clique Membership 25 further emphasize Hecate's specific role within the network.

GentleWoman:

GentleWoman, with centrality measures similar to Second Witch and Hecate, is part of Community 0 and Clique 6, suggesting a specific role in the network.

Lady Macduff:

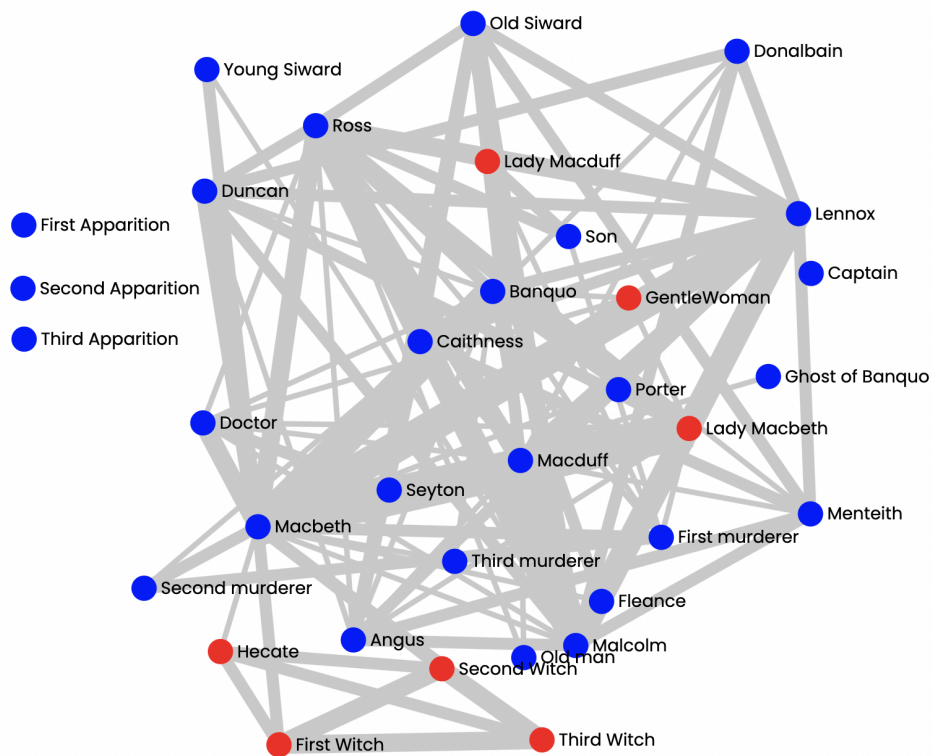
Lady Macduff is relatively isolated within the network, with lower centrality measures. A degree centrality of 0.0303 indicates direct connections to approximately 3% of other women nodes. A betweenness centrality of 0 suggests a limited role as a bridge in the network. Closeness centrality is 0, indicating moderate proximity to other nodes. The very low eigenvector centrality suggests minimal influence. Belonging to Community 1 and Clique Membership 8 indicates a specific role within the network.

These findings provide a nuanced understanding of the relationships and positions of women characters in "Macbeth," highlighting their roles, influence, and connectivity within the network. Lady Macbeth stands out as a central and influential character, while the witches form a cohesive subgroup with specific thematic roles. Lady Macduff, on the other hand, appears relatively isolated in the context of the whole network.

weighted_co-occurrences.py

Nodes: 34

Edges: 104



In this network analysis based on weighted occurrences of characters sharing the same place, we explore the centrality measures of key female characters in Macbeth. The network consists of 34 nodes and 104 connections, providing insights into the relationships and interactions among these characters.

Hecate: Degree Centrality: 0.1212. Betweenness Centrality: 0. Closeness Centrality: 0.4110. Eigenvector Centrality: 0.0459.

Hecate holds a degree centrality of 0.1212, indicating she is directly connected to approximately 12.12% of other women nodes in the network.

Her high closeness centrality of 0.4110 suggests she is well-connected to other nodes, facilitating efficient information or influence flow.

The eigenvector centrality of 0.0459 emphasizes her connections to nodes with high influence.

First Witch, Second Witch, Third Witch have identical centrality measures (degree, betweenness, closeness, eigenvector), indicating comparable connectivity and influence.

Degree Centrality: 0.1212. Betweenness Centrality: 0. Closeness Centrality: 0.4110. Eigenvector Centrality: 0.0459.

The witches are closely connected, forming a cohesive subgroup within the network.

Lady Macbeth: Degree Centrality: 0.3030. Betweenness Centrality: 0.0206. Closeness Centrality: 0.5309. Eigenvector Centrality: 0.2471.

Lady Macbeth emerges as a central and influential character with high degree centrality (connected to 30.3% of other women nodes) and high closeness centrality.

Her betweenness centrality of 0.0206 indicates a moderate role as a bridge between different parts of the network.

The eigenvector centrality highlights her connections to other highly influential nodes.

GentleWoman: Degree Centrality: 0.0909. Betweenness Centrality: 0. Closeness Centrality: 0.3693. Eigenvector Centrality: 0.0714.

GentleWoman has moderate centrality measures, suggesting a moderate level of connectivity and influence within the network.

Lady Macduff: Degree Centrality: 0.1212. Betweenness Centrality: 0.0020. Closeness Centrality: 0.4045. Eigenvector Centrality: 0.0872.

Lady Macduff, like the witches, has similar centrality measures, indicating comparable connectivity and influence.

Her betweenness centrality of 0.0020 suggests a minor role as a bridge in the network.

The identical centrality measures of the witches (First Witch, Second Witch, Third Witch) and Hecate strongly suggest that they form a cohesive clique within the network. Their shared professional bond, thematic alignment as

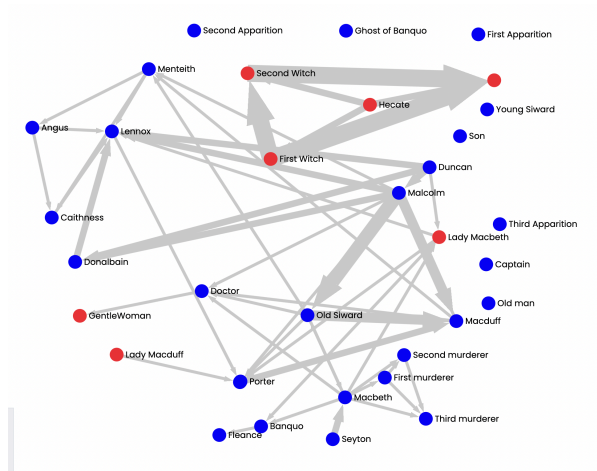
antagonists, and interconnected centrality measures reinforce their collective influence in the context of Macbeth.

Lady Macbeth, with the highest degree centrality, emerges as a central and influential character, while GentleWoman and Lady Macduff play more moderate roles within the network.

dialogues.py

Nodes: 34

Edges: 59



GentleWoman:

- Degree Centrality (0.03): GentleWoman has a relatively low degree of centrality, indicating that she is not extensively connected in the network. This shows that she is not a central figure in the dialogues and that she has fewer interactions compared to others.
- Closeness Centrality (0.146): The GentleWoman has moderate closeness centrality, implying that she is somewhat connected to the broader network but not as closely connected as some other nodes.
- Betweenness Centrality (0): This shows that the GentleWoman does not act as a bridge or mediator between other characters in the dialogues.

Lady Macduff:

- Degree Centrality (0.03): Similar to the GentleWoman, Lady Macduff has a low degree centrality, indicating a relatively lower level of interaction in the dialogues.
- Closeness Centrality (0): The zero closeness centrality suggests that Lady Macduff is not directly connected to other nodes in the network. She might have a more isolated role in the dialogues.
- Betweenness Centrality (0): Like GentleWoman, Lady Macduff's betweenness centrality is zero, indicating a lack of intermediary role.

Lady Macbeth:

- Degree Centrality (0.21): Lady Macbeth has a high degree of centrality, suggesting that she is a central figure with many connections in the dialogue network. She is actively engaged with various characters.
- Closeness Centrality (0.11): While not extremely high, the closeness centrality indicates that Lady Macbeth is relatively well-connected within the network, allowing for efficient communication with other characters.
- Betweenness Centrality (0.005): Lady Macbeth's betweenness centrality, although low, suggests that she plays a minor role as a bridge between other characters.

Third Witch, Hecate, Second Witch, First Witch:

- These characters all belong to different communities identified by Girvan-Newman, k-clique, and label propagation community detection methods. The fact that they are grouped into different communities indicates that they have distinct roles or participate in different types of dialogues.
- Degree Centrality, Closeness Centrality, and Betweenness Centrality: Similar patterns are observed among these characters. They have moderate to high degree centrality, indicating a reasonable level of involvement in the dialogues.

Lady Macbeth emerges as a central and influential character, with high degrees of centrality across different analyses. Her pivotal role is highlighted by her connectivity to other nodes, emphasizing her ability to efficiently spread information or influence. The witches, forming a cohesive clique with identical centrality measures, signify a thematic bond and collective influence in the play.

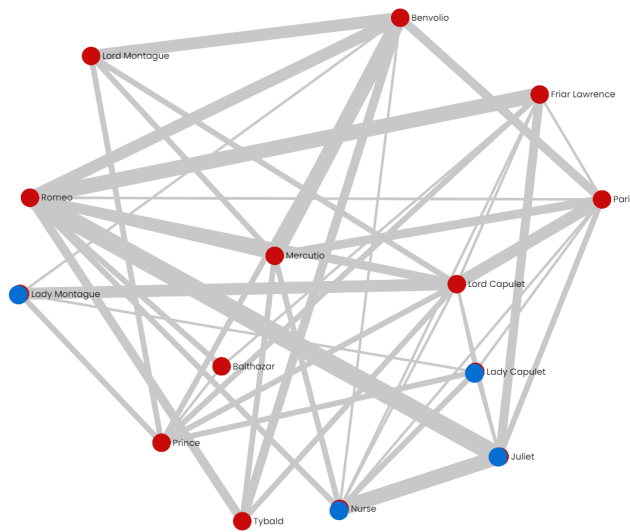
Contrastingly, characters like Gentlewoman and Lady Macduff exhibit lower centrality measures, indicating more peripheral or isolated roles. The community detection results further support the existence of distinct cliques or groups within the dialogue network, emphasizing the diversity of interactions and relationships among the characters.

Romeo and Juliet's results

Even from a first reading and subsequent superficial analysis, it was evident that the already few female figures in Shakespeare's work play a lesser role and weight than the other characters. Even Juliet, one of the protagonists and a direct stakeholder in the story's events, seems to intervene much less in the events and even in the dialogues.

In this regard, it is certainly relevant to remember that *Romeo and Juliet* is a play that was written and takes place in the cultural context of the 16th century. So the feminist criticism that can also be intercepted online is the result of far more evolved interpretations and perspectives.

1. **Interactions graph (nodes 14, edges 52)**: the nodes represent and recall the names of the characters in Shakespeare's play, while the edges represent precisely the interactions between them throughout the play about individual scenes in the acts. These data were initially collected through a tabular .csv file and then imported with a .gexf extension on *GephiLite* to enable graph visualization. Male nodes are red, while female nodes are blue.



General results

- Density: 0.495
- Degree distribution: {'Romeo': 12, 'Juliet': 9, 'Nurse': 8, 'Friar Lawrence': 8, 'Mercutio': 6, 'Benvolio': 8, 'Lord Capulet': 13, 'Lady Capulet': 7, 'Lord Montague': 4, 'Lady Montague': 4, 'Balthazar': 3, 'Paris': 11, 'Tybalt': 4, 'Prince': 7}
- Average Clustering Coefficient: 0.585
- Total triangles: 10.71

Results on female characters

1. **Juliet:**

Degree centrality: 6
 Betweenness centrality: 0.05
 Closeness centrality: 0.3
 Clustering coefficient: 0.87
 Eigenvector centrality: 0.6

2. **Nurse:**

Degree centrality: 8
 Betweenness centrality: 0.09
 Closeness centrality: 0.5
 Clustering coefficient: 0.64
 Eigenvector centrality: 0.8

3. **Lady Capulet:**

Degree centrality: 6
 Betweenness centrality: 0.05

Closeness centrality: 0.25

Clustering coefficient: 0.6

Eigenvector centrality: 0.6

4. **Lady Montague:**

Degree centrality: 4

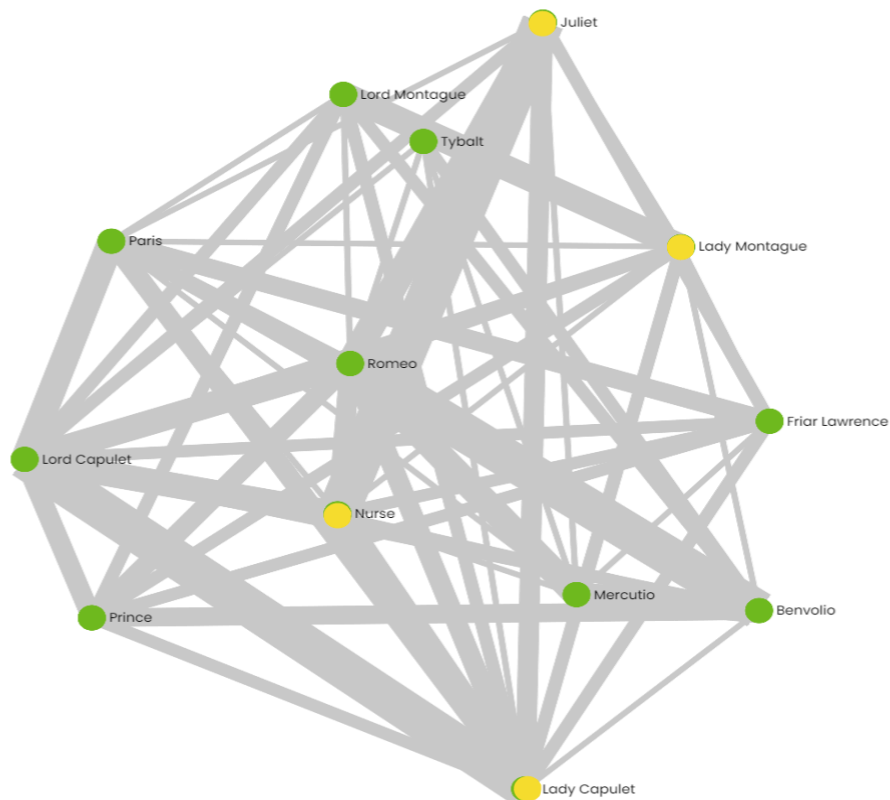
Betweenness centrality: 0.125

Closeness centrality: 0.2

Clustering coefficient: 0.67

Eigenvector centrality: 0.4

2. **Co-occurrences graph (nodes 14, edges 62):** these are the co-occurrences between characters throughout Romeo and Juliet's play regarding every scene. The data were collected through individual .csv files for each scene in each act; then through a Python script, all the data were merged into a single tabular .csv file. As with the interaction graph, the file was converted to a .gexf extension and imported into *GephiLite*. Male nodes are green, while female nodes are yellow.



General results

- Density: 0.672

- Degree distribution: {'Romeo': 11, 'Juliet': 8, 'Lady Capulet': 11, 'Lord Capulet': 11, 'Benvolio': 10, 'Mercutio': 8, 'Nurse': 9, 'Prince': 7, 'Paris': 10, 'Lord Montague': 8, 'Lady Montague': 12, 'Friar Lawrence': 9, 'Tybalt': 7, 'Balthazar': 3}
- Average Clustering Coefficient: 0.731
- Total triangles: 390.0

Results on female characters

1. Juliet:

Degree centrality: 5
 Betweenness centrality: 0.375
 Closeness centrality: 0.73
 Clustering coefficient: 0.89
 Eigenvector centrality: 0.74

2. Nurse:

Degree centrality: 6
 Betweenness centrality: 0.66
 Closeness centrality: 0.76
 Clustering coefficient: 0.86
 Eigenvector centrality: 0.81

3. Lady Capulet:

Degree centrality: 6
 Betweenness centrality: 0.05
 Closeness centrality: 0.3
 Clustering coefficient: 0.87
 Eigenvector centrality: 0.6

General measures and results in both networks:

By making, visualizing, and analyzing both networks, it was possible to understand the connections of both interaction and co-occurrence of all the characters, but in particular being able to note the relational balance between them and the female characters, the focus of our work.

The provided analyses offer insights into the network dynamics among characters in Shakespeare's "Romeo and Juliet." The interaction graph, with 14 nodes and 52 edges, indicates a moderate density of 0.495, highlighting the interconnectedness of characters. The degree distribution reveals variations in

character prominence, with Lord Capulet having the highest degree (13), emphasizing his patriarchal role that decides for her daughter and records a small number of interactions with her, the protagonist. The average clustering coefficient of 0.585 suggests a cohesive network, and the presence of 10.71 triangles indicates some degree of triadic closure.

The focus on female characters showcases their centrality and influence. Juliet, with a degree centrality of 6 and a high clustering coefficient of 0.87, emerges as a central figure in the network, but with few significant interactions for the plot and the unfolding of the events in which she is directly involved. The Nurse and Lady Capulet exhibit substantial centrality measures.

Moving to the co-occurrences graph, which comprises 14 nodes and 62 edges, a higher density of 0.672 implies more frequent connections. The degree distribution underscores the significance of Lady Montague, who now has the highest degree (12). The average clustering coefficient of 0.731 and a considerable number of triangles (390.0) signify a tightly-knit network with robust interconnections.

Examining the female characters in the co-occurrences graph, Juliet, the Nurse, and Lady Capulet continue to be very present in the scenes, but still in the minority. Their high degree of centrality, betweenness centrality, and closeness centrality values underscore their importance in various scenes. The clustering coefficient and eigenvector centrality further highlight their influence and interconnectedness.

Comparative Results

Comparing the roles and centrality of female figures in "Hamlet," "Macbeth," "Othello," and "Romeo and Juliet" provides insights into their significance within these narratives.

In "Hamlet," Queen Gertrude's prominence in the network aligns with her substantial presence in the play, challenging conventional perceptions of her character. Ophelia, while less central, displays nuanced connections, emphasizing the complexity of her portrayal. This parallels the nuanced portrayal of female figures in "Romeo and Juliet," where despite their minority, they serve as mediators among male characters.

"Macbeth" highlights Lady Macbeth's central and influential role, emphasizing her ability to spread information or influence. The witches, forming a cohesive clique, signify collective influence, echoing societal biases against ambitious women. In contrast, "Othello" shows Emilia and Desdemona as central figures, reflecting significant roles within the network structure.

Commonalities emerge in the nuanced portrayals of female characters, challenging stereotypes and revealing complexities in their roles. They often wield influence and connectivity, despite varying degrees of centrality. Moreover, societal biases against powerful or unconventional women surface, seen in the portrayal of the witches in "Macbeth."

However, there are differences in the extent of influence and societal positioning. While some female characters, like Lady Macbeth and Queen Gertrude, hold considerable centrality and challenge societal norms, others, like Ophelia and Bianca, maintain less prominent roles within the network structure.

In conclusion, these works showcase diverse and intricate portrayals of female figures. They hold varying degrees of centrality, challenging norms and reflecting the complexities of their societal roles. The female characters act as mediators, influencers, and challengers of traditional gender roles, contributing significantly to the narratives despite their differences in centrality and societal positioning.

6. Conclusion

As for Othello, Desdemona appears to wield influence through deep connections and pivotal appearances, potentially shaping crucial events within the narrative. Emilia, known for challenging norms and offering insightful perspectives, impacts the storyline dynamics, often introducing conflict or resolution. Bianca, while less prominently featured, subtly influences interactions and scenes, contributing to underlying themes and narrative developments.

In Hamlet, Queen Gertrude is a central figure with extensive connections, acting as a key influencer. Her high closeness centrality and moderate betweenness centrality highlight her pivotal role in the social fabric. Ophelia,

with lower centrality, plays a more limited role as an intermediary but represents a specific subgroup.

In the interaction network, both Queen Gertrude and Ophelia have lower connectivity, indicating limited intermediary roles. Despite not interacting directly, both characters share similar interactions with other characters.

From a hierarchical point of view on quantitative analysis, Queen Gertrude is more prominent than Ophelia in general. However, this does not align with the supremacy of Ophelia as an iconic character which was highly represented and analyzed in the future in many occurrences such as in art, movies, songs and so on and so forth.

For what concerns Macbeth, the analysis delves into the historical context of "Macbeth," revealing Shakespeare's strategic alignment with King James I's views on witchcraft and misogyny. The portrayal of the Three Witches serves as a manifestation of prevailing societal biases against ambitious and unconventional women, contributing to their diminished authority despite their crucial role in the narrative.

The examination of Lady Macbeth's character unveils a complex portrayal of a woman navigating societal expectations and power dynamics. Her rhetorical violence challenges and exploits the violent structures of the time, contributing to the play's exploration of gender roles and power dynamics.

In Romeo and Juliet, both graphs illuminate the intricate social dynamics in "Romeo and Juliet." The characters' interactions and co-occurrences reveal nuanced relationships, with certain individuals playing pivotal roles in shaping the overall network structure. These analyses provide a quantitative lens through which to understand the social fabric of Shakespeare's timeless tragedy. As far as female figures are concerned, what can, in summary, be deduced is that, despite their clear minority, they play in particular a role of mediation and intermediary among the male figures who seem to want to drag the plot but who ultimately need the advice, approval and help of female characters.

In conclusion the analysis offers a comprehensive understanding of the network, relationships, and thematic elements demonstrating how computational methods enhance literary studies and contribute to a nuanced interpretation of Shakespeare's timeless work.

7. Critique

By dissecting the roles and centrality of female characters, the analysis offers insights into their societal positioning and roles, facilitating discussions on gender stereotypes and societal expectations within literature. It sheds light on the unequal power structures and gender dynamics prevalent in literary works. The disparities in centrality measures and roles among female characters reveal underlying power imbalances and societal norms influencing their portrayal. Additionally, it enriches academic discourse by offering a lens through which scholars can explore and discuss gendered representations, societal structures, and power dynamics within literature, fostering a more comprehensive understanding of gender issues and societal expectations.

The juxtaposition of numerical measures with feminist perspectives allows for a multifaceted understanding of the female characters, demonstrating the potential of computational methods to complement and enrich traditional literary analyses. This approach, however, should be viewed as a supplementary tool rather than a replacement for qualitative interpretations, recognizing the importance of combining diverse methodologies for a comprehensive understanding of literary works.

The study could have been more complete with the possibility to build multi-graphs with self-edges also and to calculate all the existing k-cores and k-components in a network, to enrich the understanding of the network's architecture, node importance, and, mainly, hierarchical organization.

[Github Repository of the project](#)

Sitography:

- [The 7 Main Character Roles in Film: Ultimate Guide to Archetypes - Arc Studio Blog](#)
- [Macbeth Minor Characters - eNotes.com](#)
- [The Tragedy of Macbeth](#)
- [Macbeth Act-by-Act Plot Synopsis | Shakespeare Learning Zone](#)
- [Macbeth: No Fear Translation | SparkNotes](#)
- [The Three Witches from Macbeth: A Feminist Reading – Ana's Typewriter](#)
- [Shakespeare's Violent Women: A Feminist Analysis Of Lady Macbeth](#)
- [Context - Macbeth - AQA English Literature GCSE](#)
- [MACBETH](#)

- [La figura femminile nelle opere di William Shakespeare | MLA - Move Language Ahead](#)
- [Folger Shakespeare Library - Othello](#)
- [Playshakespeare.com Othello characters](#)
- [Wikipedia Othello](#)
- [Wikipedia - Women in Shakespeare's works](#)
- [eNotes - Shakespeare's representation of women](#)
- [SparkNotes - Women in Shakespeare](#)
- [Folger Shakespeare Library - Romeo and Juliet](#)
- [Wikipedia - Romeo and Juliet](#)
- [A Feminist Analysis of Romeo and Juliet](#)
- [Shakespeare Liberata: Shakespeare, the Nature of Women, and the New Feminist Criticism - JSTOR](#)
- [Shakespeare's Characters: A Visual Analysis - Yale University](#)