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A SOCIAL NETWORK ANALYSIS APPROACH TO EXAMINING GENDERED CHARACTER POSITIONS IN POPULAR FILM NARRATIVES

A thesis submitted to the University of Manchester for the degree of
Doctor of Philosophy
in the Faculty of Humanities

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Abstract

This thesis explores what the relational perspectives and tools of social network analysis can add to our understanding of the marginalisation of women within popular Hollywood film narratives. Despite empirical and theoretical suggestions that the female voice is marginalised in Hollywood cinema, we know very little about how dialogue is distributed in popular cinema, or how these patterns of character interaction structure film narratives. This thesis proposes that a network-based approach can illuminate these questions and operationalise ideas about gendered character positions in popular film narratives. There have been a number of papers proposing network models for narrative analysis in the last decade or so, primarily aimed at literature and plays. The research in this thesis aims to be the first to engage seriously with literature from both film studies and narratology to explore what these methods can add to our toolkit for understanding the dynamics of film texts. Thus, as an interdisciplinary project, the research aims both to illuminate the substantive research questions regarding the gendered positions of characters in popular cinema, as well as to develop and refine network-based approaches to the analysis of narrative texts in general.

The thesis develops a method which represents film narratives as character interaction networks by recording each line of dialogue between named speaking characters. Using this method, I construct a corpus of 27 blockbuster films. The thesis develops a number of central arguments through examination of this corpus. Firstly, using character interaction networks to explore popular film texts reveals that the narrative marginalisation of the female voice in mainstream Hollywood cinema is more complex than the current empirical benchmarks based on the distribution of speaking characters. Secondly, through a comparative character network-based analysis of *Wonder Woman* (2017), *Thor* (2011) and *The Hunger Games* (2012), I illustrate that our understanding of “female-led” in popular cinema requires more than simply identifying the presence of “strong female characters”, as Hollywood narratives can work to individualise and contain the empowerment of their female protagonists within relational frames. Finally, by taking a closer look at the question of how we relate network centrality measures to the concept of centrality within a narrative, the thesis argues that the character network approach can be a useful tool for revealing underlying patterns in how a story is told through its characters, so long as we think of character networks in terms of dynamic network representations. To this end, the thesis proposes a novel dynamic centrality measure designed to capture character positions within narratives in light of recent developments in the analysis of dynamic networks.

Declaration

I declare that no portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other institute of learning.

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The author

Pete Jones is an interdisciplinary PhD candidate with co-supervision from within the Mitchell Centre for Social Network Analysis and the School of Arts, Languages and Cultures. Following submission of this thesis he spent three months as an Academic Visitor at the University of Melbourne's Complex Human Data Hub. He holds a BA Social Sciences degree and an MSc in Social Research Methods and Statistics, both from the University of Manchester.

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Chapter 1 – Introduction

Introduction

This thesis aims to answer the question: What can the relational perspectives and tools of social network analysis add to our understanding of the narrative marginalisation of women in popular Hollywood cinema? Many claims have been made about the ways in which female characters are marginalised in mainstream narrative cinema, though the tools we have for exploring this marginalisation systematically are limited. This research aims to use social network analysis (SNA) to explore this problem, developing a character network approach to studying the representation of women in film. Research using network models to study fictional texts is an emerging subfield of network-based research, though most of the development of the approach to date has been on solving technical and computational problems rather than developing the capacity of the approach for interpretive textual analysis. In contrast, the approach I develop in this thesis is inherently interdisciplinary, putting approaches from the social sciences into dialogue with substantive questions from film scholarship. As David Bordwell puts it, “The scholar asks a question, and the answers may have no regard for disciplinary boundaries” (Bordwell 1985, xi). In my case, in order to answer the central question posed above and ensure that the research is able to engage with those current conversations most relevant to the research problem, it is necessary to draw on ideas from a number of diverse fields including film studies, feminist media studies and narratology to complement and inform the SNA approach. Thus, the interdisciplinarity of the approach allows the research to contribute in both directions: the SNA enables us to build deeper understanding of the gendered narrative positions occupied by film characters, and the engagement with ideas from film and media studies enables refinement and development of the network-based study of fictional texts more generally. The goal of this chapter is to introduce the problem this thesis aims to address and set out the rationale of the thesis, before previewing what the thesis will cover and how it is structured.

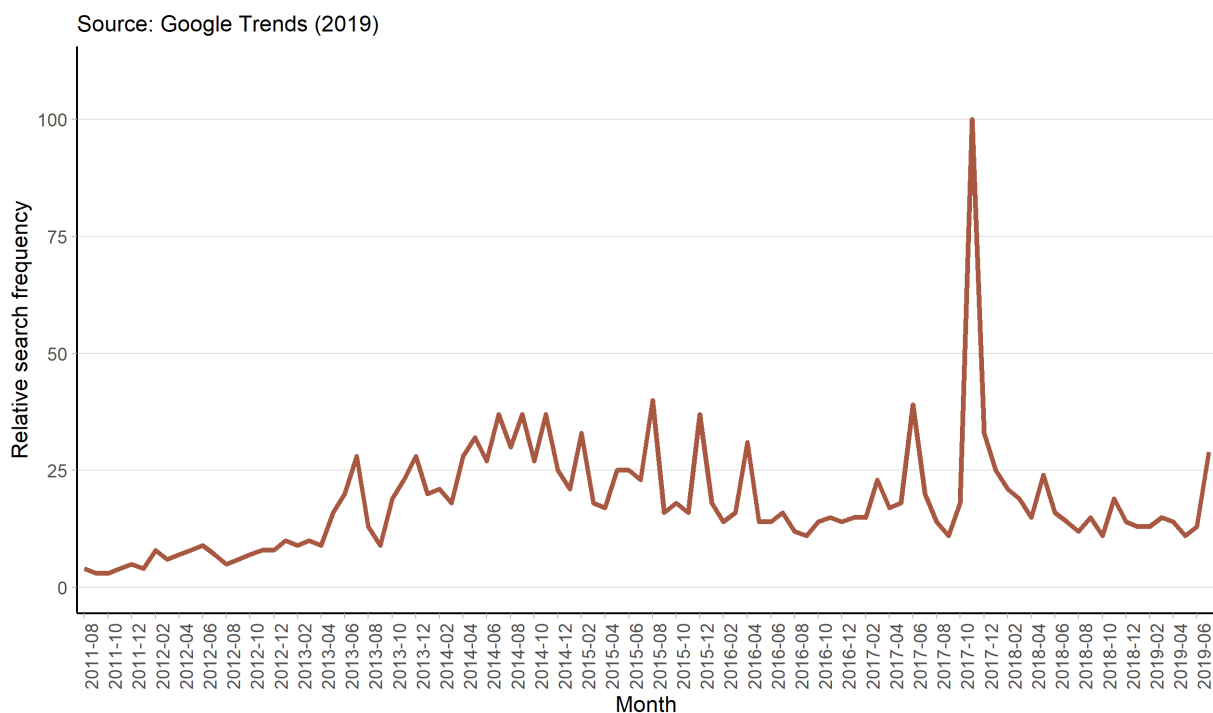
The Bechdel test

In 1985, cartoonist Alison Bechdel produced an episode of her cartoon strip *Dykes to Watch Out For* called “The Rule”. In the strip, two women walk past a movie theatre displaying posters for a number of hyper-masculine action films and discuss whether to go and see a

movie. One of the women informs the other that she has a rule whereby she will only go to a movie if it meets three conditions: “One, it has to have at least two women in who, two, talk to each other about, three, something besides a man” (Bechdel 1986, 22). When her companion remarks that this seems like a good idea, but a little strict, the first woman agrees and points out that the last movie she was able to see was 1979’s *Alien*, but only because the two women talk to each other about the monster.

In the last decade or so, this joke has resurfaced and come to be used as a “test” with which to audit the limited scope of women’s representation in cinema. The rise in popular interest in what has become known as the Bechdel test has been considerable over the last five to ten years. Perhaps the most famous example of the rise of the Bechdel test is the adoption of publishing Bechdel test results alongside certification ratings for films in some Swedish cinemas (The Guardian 2013). As well as this, several actors and directors have acknowledged considering the test when creating their work (The Guardian 2013; Women and Hollywood 2016).

Figure 1.1. "Bechdel test" search term popularity 2011-2019.



It is difficult to pinpoint exactly what caused this re-emergence, but looking at the popularity of “Bechdel test” as a Google search term (see Figure 1.1, which uses data from Google Trends, 2019) offers some clues as to some key moments. For example, the term

first peaked in search popularity in February 2012, when vlogger Anita Sarkeesian (who had previously discussed the Bechdel test on her website *Feminist Frequency* in December 2009) released a video in which she argued that only two of the nine nominees for that year's Academy Award for Best Picture clearly passed the test, while a further two did so only tenuously. This video gained attention online and enabled the idea of the Bechdel test to enter the public consciousness.

From this point on, the popularity of the search term has remained steady, with spikes occurring at moments when questions relating to women in film enter the cultural zeitgeist. For example, popularity surged in June 2017, the month in which Warner Bros. superhero blockbuster *Wonder Woman* was released worldwide to huge critical and commercial success, sparking a number of discussions about women in Hollywood. Then, in November 2017, the term's popularity rocketed to more than double its previous high following the publication of several allegations of rape and sexual misconduct against powerful Hollywood producer Harvey Weinstein. As Hollywood's severe issues with gender and power came to the fore, the Bechdel test once again became a lens through which questions of women's on-screen narrative roles were frequently focused. This highlights the fact that in popular discourse over the last five to ten years or so, when vital questions about the representation of women in Hollywood cinema have been discussed, this has usually included reference to the Bechdel test.

The Bechdel test and its popularity serves as a useful introduction for this research project for a number of reasons. Firstly, the Bechdel test asks us to consider the effect that narrative patterns in Hollywood cinema have on the marginalisation of the female voice. Secondly, what is central to the Bechdel test, though often overlooked, is that it insists on a *relational* understanding (two women talking together in non-relation to a man) of the consequences of gendered cinematic representation. The strength of the Bechdel test is that it foregrounds these vocal and relational dimensions of the underlying narrative marginalisation when thinking about the gender bias in Hollywood narratives.

This thesis posits that analysing film texts as networks of character interaction can draw on the strengths and salience of this popular test to develop a more robust and dynamic approach to exploring these questions empirically than the simplistic pass-or-fail terms the Bechdel test can offer. In the next section I offer a summary of the rationale behind using

networks to study this problem, though the following chapters will contextualise and explain this rationale in much more detail. This summary is intended to offer the reader a familiarity with the central ideas underpinning the approach, in the hope that this can serve as a kind of roadmap for the interdisciplinary path the following chapters take.

Rationale and aims

While the Bechdel test points to how women are positioned within mainstream film narratives, it is a crude tool for shining any real light on this underlying marginalisation. It is therefore worth exploring the systemic problem indicated by this simple metric in more robust terms. Drawing on the basic implications of the Bechdel test, I therefore pose the question: if there are limited opportunities for women to interact with one another independently of men, what does this tell us about the gendered ways in which popular film narratives unfold? There appear to be two dimensions central to answering this question. The first dimension is vocal – how much do women speak in mainstream cinema, and can this explain why many films fail the low bar presented by the test? Despite empirical and theoretical reasons for assuming that women’s voices are marginalised in mainstream cinema, we actually know very little about how dialogue is distributed in popular film. The second dimension of the problem is relational – what opportunities are there in Hollywood narratives for women to be granted a discourse which is not primarily defined by their relationships to men? Scholarship which has foregrounded relationships between women has focused on “female friendship films” as a distinct genre, and as such we have little systematic evidence of how patterns of gendered homosociality and relationality play out in general in popular Hollywood cinema, beyond a few niche subgenres.

I argue that using social network analysis (SNA) to look at patterns of character interaction has the potential to illuminate both the vocal and relational dimensions of gendered marginalisation in film narratives. SNA is a set of perspectives, theories and methods for analysing relational social phenomena, rooted in “the notion that individuals are embedded in thick webs of social relations and interactions” (Borgatti et al. 2009, 892). SNA-based approaches have added insight to our understanding of many issues in diverse fields due to their foregrounding of relations and interactions as a crucial dimension of how individuals come to be positioned within social structures. Using SNA to study gendered representation in film therefore allows us to operationalise and analyse not only the amount of interaction

female characters are involved with, but also with whom those interactions occur. As such, the methods and perspectives of SNA might offer more robust tools for exploring this research problem than existing empirical studies. Moreover, by moving beyond discussion of individual “strong female characters” to the position of these characters within relational structures in the narrative, a network-based approach can speak to key critical debates within feminism about stories of collective empowerment versus individual empowerment.

The number of studies attempting to extract networks of characters within fictional texts has been increasing in recent years. These studies all operate on the assumption that analysing character network structure might reveal something about narrative structure. However, the literature on how SNA can be leveraged to facilitate meaningful analysis of narrative texts is nascent and underdeveloped. The overarching goal of this research project is therefore to explore and assess the value of using a network-based approach to studying gendered patterns of representation in film. The thesis aims to explore this question by developing a novel method for representing and analysing film texts as character interaction networks. A number of blockbuster movies, many from hugely popular film franchises, have been chosen as case studies, predicated on the idea that very widely circulated films have particular power to engage in the reproduction of social meaning, including gendered meanings. These films will be analysed to explore the utility of the approach by investigating how gendered character positionings intersect with scholarly questions about power and relationality in these narratives. Moreover, these films enable us to compare benchmark figures concerning the proportion of speaking roles occupied by women in top-grossing Hollywood cinema with how dialogue is actually distributed in these films.

Structure of the thesis

The thesis contains six chapters, including this brief introductory chapter. Chapter 2 builds a deeper understanding of the underlying problem of gendered relations in mainstream contemporary US cinema, and explains in more detail the rationale for using social network analysis to explore this problem. The chapter begins by taking a closer look at the Bechdel test, considering in more depth how useful it is for thinking about the problem at hand. In order to gain a sense of what passing the Bechdel test tells us about a film, I gather a large dataset of films ($n=6,448$) containing Bechdel test ratings and movie metadata and fit a logistic regression model of the probability of passing the Bechdel test given various

attributes of the films. The model results suggest that passing the test is related to a number of underlying forces acting on the narrative conventions in Hollywood cinema. However, in reviewing how the test has been used to date in academic research, I argue that existing scholarly engagements with the Bechdel test have been more concerned with deploying, automating, or expanding the test than in unpacking and exploring the underlying narrative patterns the test indicates.

Chapter 2 then turns to the question of the underlying research problem being indicated by the test by reviewing the relevant literature the following chapters will draw on in conceptualising and operationalising how women are positioned relationally in mainstream film narratives. I review the body of systematic empirical research available for building a picture of how women are represented in popular cinema. I then discuss how feminist film theory has discussed the question of how women are positioned in film narratives.

Together, these literatures paint a picture of the systematic marginalisation of women's voices in mainstream Hollywood narratives. The chapter then turns to the question of why an approach is needed which focuses on positioning within a character system rather than simply individual characterisation. By reviewing the literature on post-feminism and film and representations of female homosociality (terms which will be defined and explained in Chapter 2), I argue that a significant component of the research problem is inherently relational as female characters are often contained and disempowered through the representation of their relations to other characters. Finally, I introduce in more depth the concept of social network analysis as a set of tools and perspectives for analysing relational structures, and offer an overview of how this approach has been used to study narrative texts in the existing literature.

Chapter 3 turns to the task of exploring the merits of different methods for constructing network models based on character interaction. I discuss all of the key decisions determining the method of data collection to be used in the thesis, making this chapter an important foundation on which later chapters will build. I focus on decisions regarding the source of the movie data and the types of ties to construct, and I illustrate these options through practical examples. I argue that directed, dialogue-based character interaction networks are needed to really understand questions of how much women speak and to whom, as other character network methods (such as scene-sharing networks) obscure much

of the information needed to explore the problem outlined in Chapter 2. I then explain the choice of films to be analysed, and why I focus on blockbuster/action films in this thesis. I argue that the literature on women in action-oriented cinema has been at the heart of many of the most productive debates relating to the research problem, but is currently characterised by ambivalence. I explain the process of building a corpus which includes a number of blockbuster films, including the Marvel Cinematic Universe series of films, the *Hunger Games* series, the *Tomb Raider* series, and a number of other relevant films. This body of film texts allows us not only to engage with the literature on action women, but also captures some of the most commercially successful film series of recent years. Moreover, it ensures that the kinds of films analysed in the thesis are the same as the kinds of films for which existing empirical evidence on the subject (which is drawn from year-end top-grossing lists), are available. Overall, the chapter provides a detailed description of how data was collected in the thesis, which data was collected, and why.

Chapter 4 puts the proposed method into action by analysing the dialogue network for the 2017 film *Wonder Woman* in comparison with *Thor* (2011) and *The Hunger Games* (2012). Drawing on the theoretical ideas discussed in Chapter 2, I present a framework for analysing gendered representations in the texts which allows us to uncover narrative dynamics which were overlooked in the critical reception to *Wonder Woman*. I illustrate in the chapter how the use of directed character interaction network data offers at least three key benefits for thinking about how gender operates in these films: it highlights the limitations of knowing only the proportion of speaking characters that are female as a measure of vocal (dis)empowerment, as this does not necessarily reflect how dialogue is distributed in the film; it highlights important gendered differences in speaking and being spoken to; and, finally, it illustrates how blockbuster film narratives can enable and constrain female protagonists from accessing a collective mode of empowerment wherein their relations with women as well as their individual characterisation are important for their power. Ultimately, the chapter problematises gendered representations of leadership in ostensibly “female-led” films such as *Wonder Woman*. Moreover, through re-embedding the film’s “strong female character” within the context of her relational positioning with the narrative, the social network approach developed here disrupts assumptions about the feminist credentials of the film. The chapter concludes by feeding these discussions from the case study back into an overall exploration of the patterns in the interaction network data for the

full corpus of films gathered in this research. This broader look at the data reveals that even in ostensibly female-led films, most of the dialogue is delivered by men, and when women do speak, it is usually directed only at men. I consider the ambiguity of the notion of “female-led” in blockbuster cinema by reflecting on the fact that only two of the films in the corpus feature women speaking more than men (*The Hunger Games: Mockingjay – Part 2* and *Tomb Raider*) while offering very different kinds of narratives.

Chapter 5 turns to the question of how the social network analysis concept of centrality can be used in a character networks approach to tell us something about the positions characters occupy in fictional narratives. Existing character networks studies have represented narrative texts as static networks by aggregating character interactions either over the entire text or by time-windowing the text into chapters. However, by engaging with the literature on narratology and narrative comprehension, I show that questions of time and sequence are central to definitions of narratives, and that the ordering of story events is critical to our perception of a narrative. Applying off-the-shelf static centrality measures such as degree and betweenness cannot therefore offer an appropriate measure of how characters feature in the narrative for two reasons. The first is that they provide a single assessment of a character’s position, though characters occupy multiple positions throughout the course of the narrative that cannot be adequately characterised in a static way. The second is that such measures do not vary under permutations of sequence, which means that if we took all the narrative events (character interactions) and shuffled them into a completely different order, the given centralities would not change. Instead, I present a new measure designed for the purpose of assessing how we might measure a character’s narrative centrality dynamically based on their character interactions. By illustrating the measure through an application to the 2015 film *Star Wars: The Force Awakens*, I show that this measure allows us to gain much more insight into how the story is told through its characters than any static measure because it allows us to situate our sense of a character’s relative importance within the context of the dynamics of the narrative. As such, we can use the measure to explore important gendered dynamics in the film.

Finally, Chapter 6 concludes the thesis by bringing together the findings of the previous chapters and returning to the question of what social network analysis can add to our understanding of the narrative marginalisation of women in popular Hollywood cinema. I

offer some reflections on what the approach developed in this thesis suggests about the way we think about the research problem described here. On a methodological level, I argue that networks can be deployed as useful models for narrative texts, but only if we think much more carefully about how to represent the text as data than existing character network approaches have done. Substantively, I argue that the data gathered for this thesis illustrate a number of gendered asymmetries in blockbuster cinema. In particular, when female heroes are at the centre of blockbuster narratives, their leadership is not enacted vocally to the same extent as their male counterparts. There is also a relational asymmetry through which women can be isolated from other female characters and less independent from male characters in a way that is not mirrored for male heroes. Ultimately, the process of gathering data on the distribution of dialogue in blockbuster cinema and examining gendered representation through an explicitly relational lens reveals that there are serious gender biases in the way that these stories are told which are missed by approaches which narrow the debate to “strong female characters” detached from their position in the character system.

Throughout the thesis, all analysis was conducted using the statistical software R (R Core Team 2019). All visualisations were made using the *ggplot2* package (Wickham 2016); network diagrams were made using the packages *ggraph* (Pedersen 2018) and *graphlayouts* (Schoch 2019).

Chapter 2 – Beyond the Bechdel test: Developing a relational approach to studying the marginalisation of women in popular film

Introduction

This chapter has three overarching goals: (1) to take a closer look at the Bechdel test, in order to better understand what it reveals about the representation of women in popular film, (2) to engage the relevant scholarly literature in order to develop a deeper understanding of the narrative forces underlying the gendered marginalisation which might explain why so many films fail the simple criteria of the test, and (3) to explain in more depth why an explicitly relational approach is useful for studying the narrative marginalisation of women, and to introduce social network analysis as a set of tools with which we might do so. In pursuing these goals, I will introduce the key ideas in the literature that have fed into the approach to studying film used in this thesis, and explain why they are needed. In doing so, I situate the research presented in this thesis within current debates concerning the representation of women in film, and provide the reader with a deeper familiarity with key evidence and concepts from different disciplines that will be drawn on and engaged with in each of the subsequent chapters.

The chapter is structured in three parts. In Part 1, I aim to answer the question of how many films pass the Bechdel test and why, in order to find the determinants of passing the test. I present a logistic regression model predicting test success using a large dataset of over 6,000 films I constructed by combining user-submitted Bechdel test ratings from www.bechdeltest.com and the Internet Movie Database (IMDb). I review the academic research engaging with the Bechdel test and argue that this work has focused on deployment of the test rather than on identifying and unpacking the underlying problem indicated by the test. To address this, in Part 2 I review key ideas from the film and media studies literatures which can help us to understand how the marginalisation of the female voice in Hollywood narratives underlies the failure of so many films to pass the simple criteria of the test. I unpack this marginalisation by reviewing empirical evidence from a body of systematic content analysis-based research into cinematic representation, as well as key ideas from feminist film theory about how women are positioned in mainstream film

narratives. I then explore the relational dimension of the problem by reviewing the literatures on post-feminism and film and representations of female relationships to show that analytic approaches that focus on individual protagonists can overlook important elements of how female characters can be (dis)empowered in film narratives via their relationships with other characters. Finally, in Part 3, I turn to the question of social network analysis (SNA), outlining what SNA is and why it would be useful for studying film texts in light of the developing argument about the importance of considering female characters in the context of their position within the relational character structure. I describe how SNA has been used to study fictional narrative texts already and introduce the emerging area of “character networks” research. In doing so, I aim to answer the “why” of applying social network analysis to the research problem, before turning to the “how” in Chapter 3.

Part 1: A closer look at the Bechdel test

The Bechdel test in academic research

As noted in the previous chapter, popular interest in the Bechdel test has been considerable over the last five to ten years, and the test seems to be invoked most often when issues relating to women in Hollywood enter the public consciousness. This illustrates that the Bechdel test continues to feature as a key part of the language with which the under-representation of women in Hollywood is discussed in both popular and media discourse. However, the substantial interest in the test from the public, the media and the film industry over this period has not given rise to much scholarly attention. In this section I will review how the Bechdel test has been used in academic research to date.

Due to its cultural impact, some scholars have attempted to deploy the Bechdel test in different contexts. For example, Garcia et al. (2014) attempt to automate Bechdel test ratings from text (film scripts and social media posts) in order to create a ‘Bechdel test of social media’ with which they could explore whether on-screen gendered dialogue patterns are also found in real online communication. The authors create a ‘Bechdel score’, which can be calculated for both males and females and measures the proportion of all dialogues in a set that are between members of the same sex and do not make reference to a member of the other sex. This measure is then applied to a dataset of 213 films, using an existing dataset of over 16,000 YouTube film trailers as a sampling frame and selecting for films for

which a script is available online. The study finds that the median Bechdel score for male-male interactions in film is higher than that for female-female interactions. The authors suggest that this “confirms the observation that movies in English tend to portray female characters as more dependent on male characters than vice versa” (Garcia et al. 2014, 11). The study then compares these results to ‘real life’ dialogue extracted from exchanges between users of social media websites Twitter and MySpace. After partitioning the dialogue sets into subsets of roughly the same length as an average movie, the authors found that the ‘independence’ of male users (interactions which do not make reference to the opposite sex) on Twitter was significantly higher than females, though no significant difference could be detected from the MySpace data.

Kapoor et al. (2015) further expand upon the premise of the Bechdel test in a study of Bollywood films in which they recorded dialogue and attempted to create an ‘Indian Bechdel’ which they apply to Hindi cinema. The Indian Bechdel builds on the Bechdel test criteria by coding dialogue content not simply by ‘about a man’ versus ‘not about a man’, but also by a number of other categories (e.g. work, relationships, sex, recreation, world affairs) in order to build an index for classifying stereotypical and non-stereotypical conversations. The study also creates a ‘Reverse Bechdel’ for men, where certain criteria are inverted to assess stereotypical representations of conversations between male characters. Thus, for a film to pass the Indian Bechdel, it would have to feature a conversation between two women about something other than a man or other stereotypical topics; to pass the Reverse Bechdel, it would need to feature a conversation between two men that was neither about a woman nor another stereotypical male topic. The authors selected 5 films from each of the categories ‘top-grossing’, ‘women-centric’ (“movies focusing on the sociopolitical and personal concerns of women”) and ‘parallel cinema’ (“movies that are in opposition to mainstream cinema, and aim to facilitate social change through representations of reality”) (Kapoor et al 2015, 6). The study found only three female-female conversations in top-grossing films, none of which were coded as non-stereotypical. The highest proportion of non-stereotypical conversations were found in women-centric and parallel cinema films, where 49.6% and 50% of conversations were coded this way, respectively. The research presents an interesting attempt at getting closer to the deeper problem indicated by the Bechdel test by extending the test to include different kinds of

stereotypical conversations rather than simply deploying it in its standard form. However, the study is limited by its small sample sizes.

A 2015 essay by Scott Selisker offers a different kind of engagement with the test which reflects on the meaning of the test rather than taking it at face value. Selisker explicitly acknowledges and explores the relationality of the Bechdel test and situates it within a history of analysing social worlds in fictional texts. The paper argues that the Bechdel test implicitly figures films as character networks (a concept discussed in detail later in this chapter) by looking for gender bias within the ways female characters interact with other characters around them. As such, it asks us to consider the potential for network-based readings of women's roles in narratives. For example, Selisker notes that a "female character isolated near the center of a network often serves as a prop for a central male character's self-actualization", and such an isolated character is unlikely to help a film pass the test due to her structural positioning (Selisker 2015, 515). In short, Selisker's reading of the value of the Bechdel test is that it asks us to look at the social space occupied by women in film character networks to check that "they don't function solely as intermediaries between men" (Selisker 2015, 516).

This interpretation offers a more useful way of using the test in academic research as it asks us to probe into the underlying narrative structures revealed by the Bechdel test. Though Selisker does not develop this point into a framework for evaluating these relations in film, his article suggests ways in which social scientists and media scholars can build understanding of gender bias in film through analysis of character network structure. I will return to the idea of character networks explicitly in Part 3 of this chapter. For the present purposes, what is important to note from Selisker's argument is the idea that the likelihood of passing the Bechdel test is related to the positions female characters occupy in the narrative structure as a product of their relations and interactions with the other characters.

What does it mean to pass the Bechdel test?

Selisker's argument suggests that the Bechdel test is an indicator of deeper patterns in the relational character structure of film narratives. The existing studies outlined above do not tell us much about the underlying narrative structures which lead to films failing the simple criteria of the Bechdel test as their focus is on analysing *with* the Bechdel test rather than analysing the test itself. Thus, a first step in understanding the problem being indicated by

the Bechdel test is to build understanding of what passing the test actually tells us about a film. In this section I explore this question empirically. In particular, I aim to investigate the extent to which the underlying character structure of a narrative drives test success.

In order to explore these questions, I gathered a large dataset of films containing information about the films and which of the Bechdel test criteria each satisfies. These data were gathered from two main sources. Firstly, Bechdel test ratings were pulled from the open API of the website www.bechdeltest.com, wherein users can submit a rating of which of the three Bechdel test criteria a given film passes (if any). This resulted in an initial dataset of 6,686 films spanning over a hundred years. As well as the crowd-sourced Bechdel rating, this data also contains an indicator of which ratings were flagged as dubious and metadata about the submission of the rating. The second source was the popular online film resource the Internet Movie Database (IMDb). Each film in the initial dataset had an IMDb ID which was used to merge data pulled directly from IMDb (using the OMDb API¹), along with aggregated film review data from the websites Rotten Tomatoes and Metacritic (also available via the ODb API). The dataset was then cleaned to remove films which were of no interest to the research (shorts, documentaries, news films etc.), duplicates and entries with incorrect or missing data, leaving 6,448 films. Of these 6,448 films, 3,764 (58.4%) passed the Bechdel test, while 2,684 (41.6%) failed.

Figure 2.1 shows the distribution of films in the sample by release year, which ranges from 1906 to 2016. We can see that there are fewer than 50 films per year for the period to 1985, though there is ample data for films released in the last decade or so. Querying the dataset reveals that the vast majority of major Hollywood releases from the last 30 years are rated on bechdeltest.com and present in the dataset. 70.3% of the films in the dataset list the United States as one of the countries of production, while 78.7% of the films were released in the last 35 years. Figure 2.2 shows the percentage of films passing each of the Bechdel test criteria over time (the figure omits films released prior to 1930 as this was around the time when sound became common in popular cinema). We can see that there seems to be a slight linear increase over the last 30 years or so in films passing each of the test criteria.

¹ The Open Movie Database, see <https://omdbapi.com>.

Figure 2.1. Frequency distribution of films in the dataset by release year.

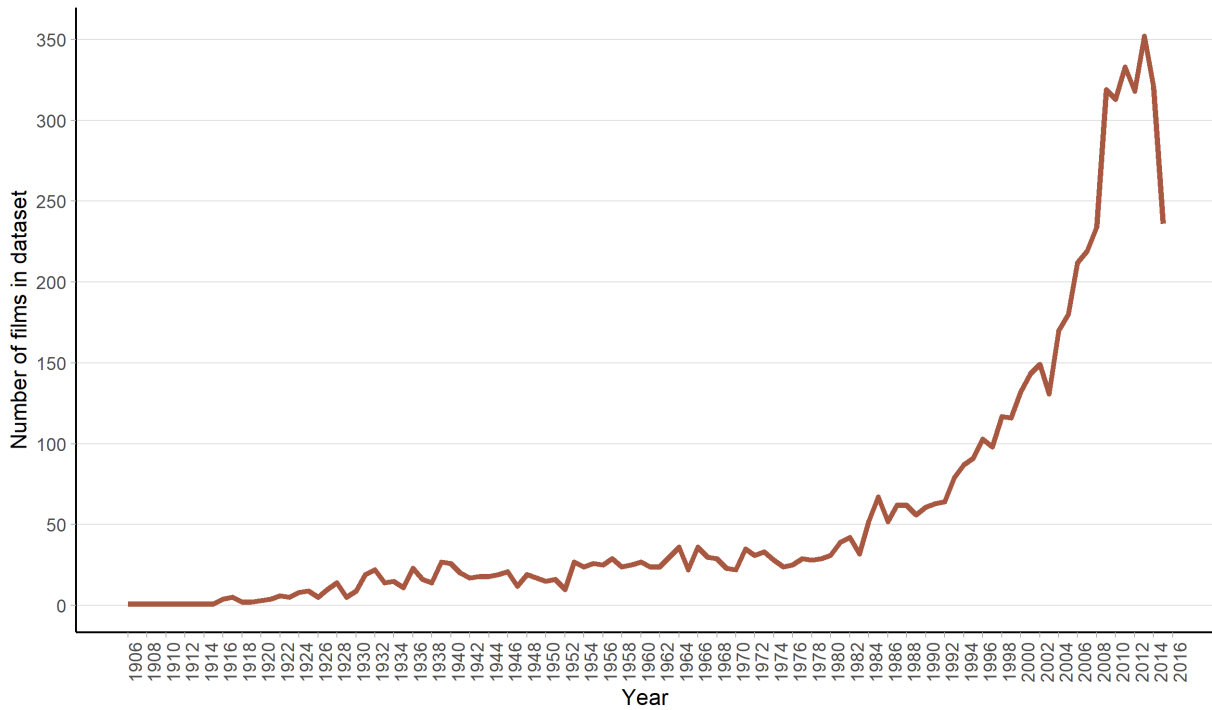
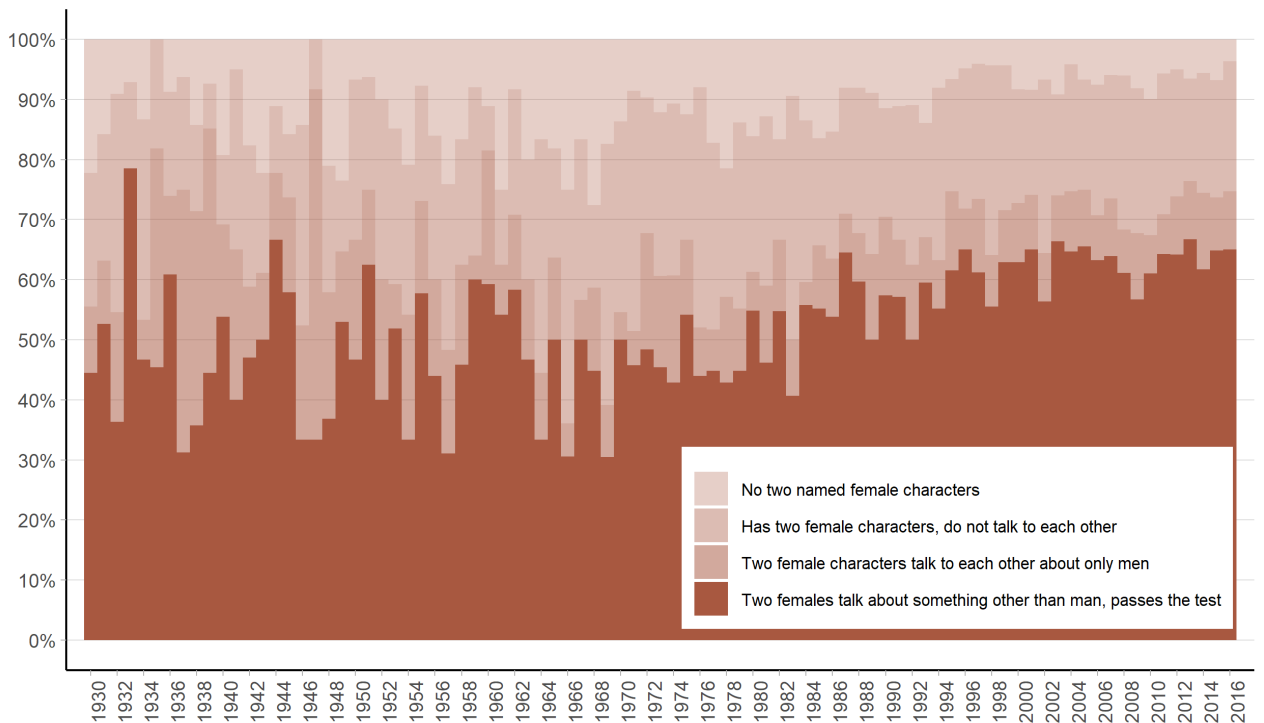


Figure 2.2. Percentage of films passing the Bechdel test over time.



Variables were then added to label the gender of the lead actor, the lead writer, and the director. Following Hunt et al. (2019), the lead actor was defined as the first actor listed in

the IMDb cast list, which is analogous to the actor with “top billing”; the lead writer was identified in the same way. The gender of these individuals was identified based on their first names as they appear in the data extracted from IMDb. This was done using an R package called *gender* (Mullen 2016) which looks up a given name against U.S. Social Security Administration data to find the proportion of males and females with that name within a given range of years (see Blevins and Mullen 2015). This procedure identified a gender for around 90% of first names in the data. For the remaining names for which this method did not produce a reliable match, genders were inputted manually by consulting the IMDb page of the individual². Table 2.1 shows some descriptive statistics for these generated gender variables. We can see that while around 39% of films featured a female as the top-billed character, this percentage is notably lower for directors (11%) and lead writers (19%). Each of these figures is actually slightly higher than annual content analyses of Hollywood’s top-grossing films find (see Hunt et al. 2019; Lauzen 2019; Smith et al. 2018), suggesting that the bechdeltest.com sample may be somewhat selective on more female-led projects.

Table 2.1. Descriptive statistics for generated gender variables in the dataset.

Role	Number of women (%)	Number of men (%)
Director	708 (10.98%)	5,749 (89.02%)
Lead writer	1,200 (18.61%)	5,248 (81.39%)
Lead actor	2,490 (38.62%)	3,958 (61.38%)

Figure 2.3 illustrates the impact of gender in the film production process by showing the percentages of films in the sample passing the test by gender and category. In all cases, the percentage of films passing is above 80% when a woman fulfils one of the 3 roles highlighted here. This shows that the gender of those in key production roles can indeed have an impact on the way that character interactions play out in Hollywood narratives. The effect seems to be most dramatic for the lead actor, with gender having a significant impact on passing the test. This should not be surprising, as the presence of female speaking characters is a prerequisite for a film passing the test, and the film featuring a woman as its

² I thank and acknowledge the contribution of my colleague Dr. Termeh Shafie here for her time spent manually collecting the missing data.

highest-billed actor is likely to go a long way towards achieving this. However, it is striking that when the lead actor is a man, fewer than 50% of films in the dataset pass the Bechdel test.

Figure 2.3. Percentage of films in the dataset passing the Bechdel test by the gender of the director, lead writer and lead actor. Solid bars indicate the percentage of films passing the test, transparent bars indicate films failing the test.

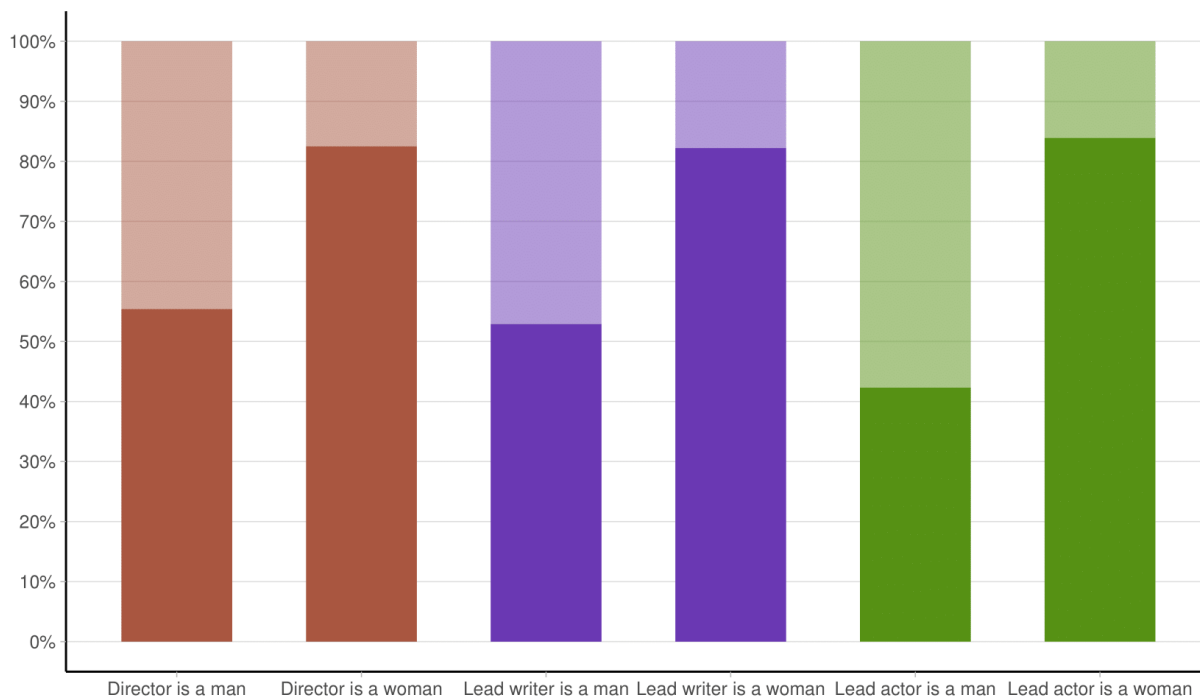
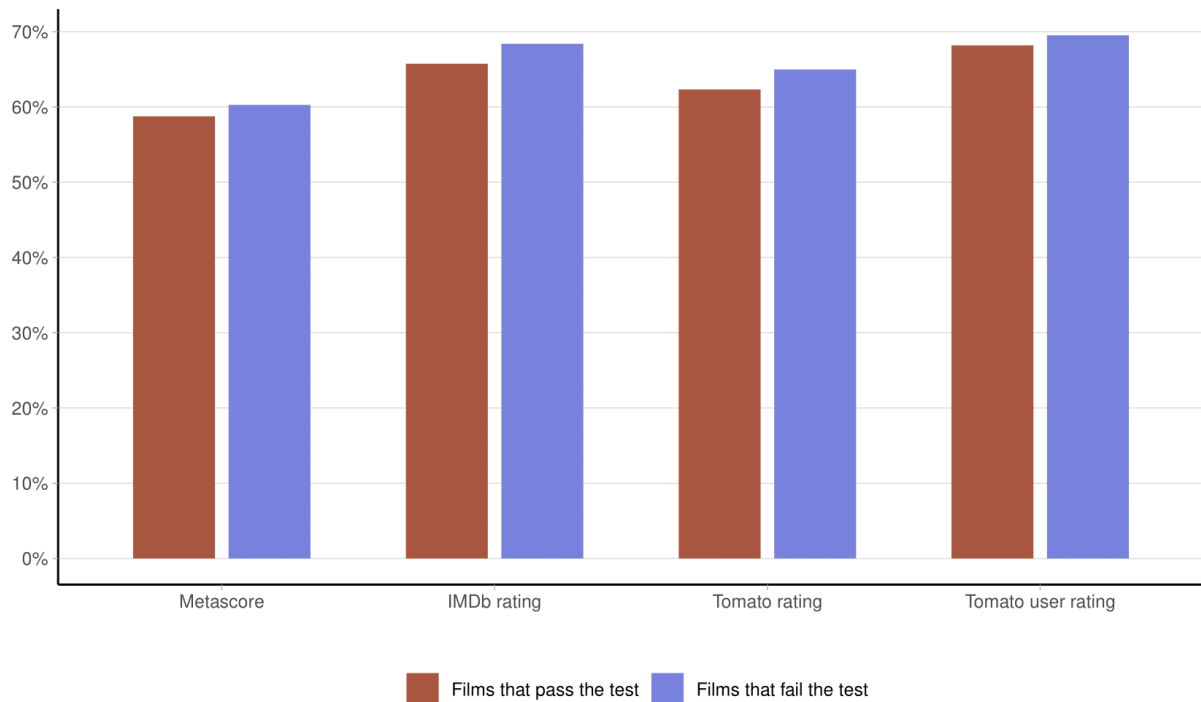


Figure 2.4 shows the difference in average review scores for films that pass the test versus films that fail the test. The data features two user-based measures: the IMDb score is a user-submitted rating (out of 10), while the Tomato user rating is based on an average number of stars given (out of 5) by users of the website Rotten Tomatoes. The Metascore and Tomato rating measures both use complex aggregation and weighting methods to try and provide a summary of the opinion of film critics, quantifying the degree of approval on a decimal scale. Interestingly, for both critical and popular opinion, films that feature two women talking about a non-male subject appear to be slightly less well-liked than those that do not.

Figure 2.4. Average review scores for films in the dataset by Bechdel test rating. Scores have been scaled such that the maximum score is 100% to standardise between review sources.



Modelling Bechdel test success

In order to estimate the effects of the factors considered here alongside one another, a logistic regression model was fitted to the data. While the figures and tables above illustrate the marginal effects of certain variables on test success, the logistic regression model enables us to account for the possibility of relationships between variables (for example, the possibility that female-directed films might be more likely to feature a female lead). This type of model estimates the effect of a given set of explanatory variables on the probability of a binary outcome variable. The outcome variable of the model is the pass/fail indicator variable. As well as the main variables of interest described above, further variables were added to the model. The release year of the film was added to explore whether there was clear improvement in the industry over time. The release year variable was centred around the median year. As I outline in Part 2 of this chapter, many of the discussions and empirical studies of representations of women in film are particularly concerned with Hollywood cinema. A dummy variable indicating whether the United States was listed among the film's countries of production was therefore added in order to delineate any potential "Hollywood effect" in the data from more global patterns. 70.3% of the films in the dataset listed the United States among their countries of production.

Finally, the genre of the film was added to the model, as film studies scholarship has argued that genre conventions play an important role in structuring Hollywood narratives (see Neale 2000). Moreover, these genre conventions often intersect with ideas about gender, as for example in Schubart's definition of "male film genres" as those which depict a male hero acting as "a role model of masculinity" (Schubart 2007) versus female genres. Schubart claims that: "By this definition westerns, war movies, action movies, martial arts movies, spy movies, gangster movies, and road movies are male film genres. Romance, romantic comedy, and melodrama, on the other hand, are *female* genres with a female protagonist and a female audience" (Schubart 2007, 9, italics in original). It should be noted that in the original IMDb data, movies can have several genres (for example "Action, Adventure, Comedy"). For this analysis, all such strings were parsed and a dummy variable was added to the dataset for each unique genre in the dataset. Thus, for a film of genre "Action, Adventure, Comedy", the dummy variables for "Action", "Adventure" and "Comedy" would each take the value 1, and all other genre dummy variables would take the value 0. It should be noted that there is no reference category for these variables and they should be considered separately from one another – i.e. the genre coefficients provide the probability of a film for which that genre is listed passing the Bechdel test relative to a film for which that genre is not listed.

IMDb score was chosen as the review metric with the most data points (only five films in the dataset do not have an IMDb score, and these were removed from the model). The average IMDb score in the dataset is 6.7 (out of 10). Interaction terms were added for the romance and comedy genre variables (to try to capture the "romantic comedy" as a distinct genre), as well as the director and actor gender variables. In both cases, these interaction coefficients were non-significant and were removed in favour of the simpler model. Results are provided in Table 2.2, with estimates representing log odds values (a positive estimate for a given variable means that the probability of a film passing the test increases if the observed value on that variable increases).

Table 2.2. Model estimates predicting Bechdel test success from film-level attributes.

Variable	Estimate	SE
Year (centred)	0.013***	0.001
IMDb score	-0.099***	0.032
Director is male	-0.492***	0.122
Lead writer is male	-0.760***	0.094
Lead actor is male	-1.722***	0.067
US-produced	0.197***	0.067
<i>Genre</i>		
Drama	0.0445	0.081
Biography	-0.245	0.141
Crime	-0.332***	0.09
History	0.017	0.183
Comedy	-0.008	0.077
War	-0.577**	0.207
Romance	0.304***	0.083
Fantasy	0.094	0.111
Family	0.328*	0.13
Adventure	-0.204*	0.093
Action	-0.359***	0.091
Horror	0.289**	0.109
Mystery	0.017	0.111
Thriller	-0.108	0.096
Sport	-0.758**	0.259
Western	-1.245***	0.347
Sci-Fi	-0.2	0.111
Music	0.087	0.181
Musical	0.378*	0.182
Film-Noir	-0.168	0.315
Animation	-0.007	0.129
Constant	2.774***	0.271
Observations	6,443	
Note:	* p<0.1; ** p<0.05; *** p<0.01	

Table 2.2 shows that the gender of the highest-billed actor is, perhaps unsurprisingly, a strong predictor of Bechdel test success in the data. The results also show that films are

more likely to pass the test over time, while films produced in the US are more likely to pass than non-US produced films. The genres which produced a positive log odds coefficient in the model are: Romance, Family, Horror, and Musical. The genres with a negative coefficient are: Crime, War, Adventure, Action, Sport, and Western. Coefficients for the genres Biography, Comedy, Fantasy, History, Drama, Mystery, Thriller, Film Noir, Music, Sci-Fi and Animation were all non-significant, suggesting no independent relationship with the test success variable. Interestingly, these results broadly correspond with Schubart's (2007) definition of male and female genres.

These results illustrate that there are a number of underlying factors which affect how characters interact in Hollywood narratives. Notably, genre has a significant impact on whether a film passes the test or not. This suggests that any analysis of gendered representation should account for the role of generic conventions in structuring the narrative. I will return to this issue when discussing the selection of cases for study in Chapter 3. As well as genre, the gender of a lead actor can also be seen to have a significant effect on the probability of passing the test. This is not surprising, but it is a strong reminder that the underlying character structure of the narrative can facilitate or constrain opportunities for women to interact in ways that are independent of male characters. The results suggest that stories centred on women find it much easier to facilitate these kinds of interactions, while stories centred on men do not make space for such an exchange. Thus, we should consider through which characters the story is being told when thinking about how gendered marginalisation might occur in film narratives.

Together, the results in Table 2.2 illustrate that passing or failing the Bechdel test indicates deeper gendered patterns that are written into the narrative at multiple levels of the text. Even when the complexity of these narratives is compressed into a single pass/fail rating, we still find strong support for the notion that passing the test is related to the position of female characters in the underlying character structure. Moreover, it is clear that a number of forces shaping narrative conventions impact the likelihood of passing the test, including genre, year, and the gender of the director and screenwriter. Thus, these findings suggest that, far from being arbitrary, the test summarises deeper gendered patterns in narrative structure. This chapter now turns to the task of unpacking these narrative patterns by

reviewing the relevant scholarly debates which can help us to build a deeper understanding of the underlying problem being indicated by the Bechdel test.

Summary

This closer look at the Bechdel test raises a number of points. First, where the Bechdel test has been engaged with in scholarship, this has usually taken the form of attempting to automate, refine or extend the Bechdel test rather than unpacking what the test is actually telling us about gendered representation. As a result, there has not been a clear sense of what it really means to pass the test, or if critics are right to suggest that passing the test is basically an inevitability if a film has two central female characters in it (Collin 2013). The quantitative analysis presented here demonstrates that the test is indicating underlying narrative patterns relating to character structure, production context and genre that need to be further unpacked. Moreover, the fact that fewer than 60% of films overall (and fewer than 50% of films featuring a male as the top-billed actor) in the dataset pass the test suggests that Hollywood narratives are structured in such a way that female characters tend to have access to only a limited range of character interactions which centre around men. As noted by Selisker (2015), the strength of the Bechdel test is that it asks us to consider how this limited range reveals gendered patterns of narrative marginalisation. We should therefore consider the underlying factors that produce the problem the test seems to be indicating. In the next section, I will explore some key ideas from film and media studies scholarship which will help us to build a deeper understanding of these underlying narrative factors, in order to provide a theoretical grounding on which the idea of a character network-based approach can be developed.

Part 2: A deeper understanding of the research problem

The high proportion of films failing the Bechdel test suggests that mainstream Hollywood narratives often do not make space for female characters that are defined independently from their relationships with men. In the following sections I will review the relevant evidence and debates that can help us to understand why this might be the case. In doing so, I aim to develop a more scholarly and robust understanding of the underlying research problem being indicated by the Bechdel test.

Empirical research on gendered representations in film

One of the first challenges of trying to build a deeper understanding of the narrative marginalisation of women is to ask the question: what do we know about how female characters feature in Hollywood film narratives? The systematic empirical evidence we have on the subject comes primarily from content analyses which evaluate large numbers of films according to a researcher-defined codebook in order to generate quantitative data from the film texts. These content analyses can be divided into two categories: annual reports on the “state of play” in Hollywood, conducted by university-affiliated research groups but not published in peer-reviewed outlets; and peer-reviewed papers which use systematic content analysis as their methods for answering scholarly research questions.

Research in the first category includes the annual “Hollywood Diversity Report” conducted by Darnell Hunt, Ana-Christina Ramón and Michael Tran of UCLA; the annual report “Examining Portrayals of Gender, Race/Ethnicity, LGBT & Disability” in popular films conducted by Stacy Smith and colleagues from the Annenberg Inclusion Initiative at USC Annenberg; and the annual “It’s a Man’s (Celluloid) World” report authored by Martha M. Lauzen of the Center for the Study of Women in Television and Film at San Diego State University. These reports primarily aim to provide empirical evidence on the state of representation and inclusion in front of and behind the camera in the film industry, in order to contribute to the dialogue on the subject in the media, the industry and public discourse. I will describe each of these studies and what they tell us about the research problem in turn.

The Hollywood Diversity Report aims to document the degree of diversity behind and in front of the camera in Hollywood, identifying trends and patterns in the representation of diverse groups and exploring the relationship between this diversity and the bottom line (Hunt et al. 2019). The 2019 Hollywood Diversity Report is the most recent of six annual reports and it analyses top-grossing films released in 2017 as well as television shows released in the 2016-2017 television season. Here, I focus only on the results from the film industry, as television is a medium that has evolved its own separate narrative dynamics, conventions, audiences and scholarly literature. The report selects the 200 theatrical releases from 2017 ranked highest by global box office, before excluding foreign-language films to leave a corpus of 167 popular films. The report shows that women accounted for

32.9% of the lead actors among these films, where “lead actor” is defined as the first credited actor in the film’s cast list. This figure was the highest yearly percentage in the six years of data available, a slight increase from 31.2% in 2016. However, it is worth noting that the year-on-year figures are very consistent, never going below 25.3% (2013) or above 32.9% (2019). From this, we can infer that women typically make up somewhere between one-in-four and one-in-three leads of top-grossing feature films. The report also finds that women accounted for 37.15% of all actors in top-grossing films in 2017.

These findings are similar to those seen in the Annenberg Inclusion Initiative (All) report on inequality in popular films (Smith et al. 2018). This report looks at the 100 fiction films with the highest domestic (US) box office returns each year since 2007, providing a large sample of 1,100 films. The study finds that in the 100 top-grossing films of 2017, only 33 featured a female lead or co-lead (where this is defined as “those roles that lasted the longest in the film and drove the narrative’s main storyline”, Smith et al 2018, 31). In the 11-year sample, the percentage of films featuring a female lead or co-lead in a given year varied between 20% and 34%. The study also looked at the number of films with a “gender-balanced cast” (films in which 45%-54.9% of the speaking roles are filled by women) and found that 19 films in 2017 met this mark, though previous years varied between 4 and 18. Moreover, the report looks at all speaking characters in each film and finds that, of the 4,454 speaking characters in 2017’s top-grossing films, only 31.8% were women. There is striking consistency in this statistic year-on-year, with the percentage of speaking characters that are women in a given year never being lower than 28.1% and never above 32.8%. Overall, across 48,757 speaking characters in 1,100 films over 11 years, women accounted for 30.6% of speaking characters.

The *It’s a Man’s (Celluloid) World* report again confirms many of the same patterns (Lauzen 2019). This study also presents a content analysis of the top 100 grossing films of the year based on US box office returns, though it presents slightly different categories to the All study. The most recent report shows that in the top-grossing films of 2018, women accounted for 36% of major characters, defined as characters who “appear in more than one scene and are instrumental to the narrative of the story” (Lauzen 2019, 6). This was in keeping with recent years (37% in 2017 and 2016, and 34% in 2015). The report also found that women account for 31% of protagonists in 2018’s top-grossing movies, defined as “the

characters from whose perspective the story is told” (Lauzen 2019, 6). This represents a slight increase over recent years (24% in 2017, 29% in 2016, and 22% in 2015). Regarding the vocal representation of women, the report shows that only 35% featured 10 or more female characters in speaking roles, while 82% of the films featured 10 or more male characters in speaking roles. Moreover, it found that women accounted for 35% of speaking roles in 2018, a marginal increase on 2017 (34%), 2016 (32%) and 2015 (33%). Again, the consistency of these speaking role figures year-on-year is notable.

There are several things to note at this point about the picture painted by these annual reports. First, it should be acknowledged that the consistency across studies is at least partly accounted for by the overlap in which films are included in each content analysis due to the use of annual top-grossing lists for sample selection. When considering what the results reveal about Hollywood films, it should therefore be remembered that we are talking in particular about mainstream, popular Hollywood films. Secondly, it is clear from the studies that women are quantitatively under-represented among central characters in these films, by a ratio of at least two men for every woman. A similar ratio is found when looking only at speaking characters, where the stability of the statistic over time is striking. This suggests that the under-representation and marginalisation of the female voice is part of the basic formula of mainstream Hollywood storytelling.

Turning to the body of peer-reviewed content analysis-based research offers additional empirical evidence on this subject. The studies in this category typically aim to answer specific substantive research questions rather than offer a general state-of-play report on the industry. As such, their methods and findings vary more than the annual reports. Nevertheless, they offer useful evidence for understanding the nature of women’s roles in popular film narratives. For example, Bleakley et al. (2012) examined a sample of over 850 top-grossing films (systematically sampled to select half of the 30 top-grossing films from each year from 1950-2006) and found that, among main characters, men outnumbered women by a ratio of over two-to-one consistently throughout the period. Main characters were defined in this study as the (up to) eight most-prominent characters based on a combination of criteria including movie packaging and the IMDb page for the film. The study found that, overall, 31% of main characters in the sample were women, while the average number of male characters (4.67) was significantly higher than the average number of

female characters (2.11). The study also found that this ratio remained fairly stable across the time span of the sample, but for a slight narrowing of the gap through the 1950s and early 1960s. This suggests that the ~30% benchmark consistently found by the annual analyses identified above may be in keeping with of a much longer trend in popular Hollywood cinema.

Smith et al. (2010) analyse portrayals of women in 101 top-grossing fictional films rated for a general audience released between 1990-2005. The authors find that out of 3,039 speaking characters in these films, only 28% were female, and that in the 47 films in the sample which had a narrator, only 17% of those narrators were female. The study also examined the prevalence of stereotypes in the sample. The authors found that around two-thirds of female characters (66.3%) were portrayed as parents, compared with 34.6% of male characters. Similarly, only 36.9% of female characters were depicted with no discernible romantic relationship, compared with 65.8% of male characters, while 60.7% of female characters were shown in married or committed relationships (compared with just 31.9% of male characters). On the subject of employment, the study found that around 55% of male characters were shown in employment, compared with around 48% of female characters. The authors found that women were more likely to be seen in traditionally masculine jobs (16.2% of female characters) than men were to be seen in traditionally feminine jobs (2.3%), though this may reflect the fact that more jobs are stereotypically masculine than feminine due to historical inequities in labour force participation. Female characters scored significantly higher than males on indexes scoring characters on goodness (versus badness), intelligence, and beauty, while males scored higher on physical power and seriousness. These findings are stable across the sample, with no significant trends found over the time period analysed.

Several of the findings in this study resonate with other research. For example, Lauzen (2019) finds that viewers of the top-grossing films in 2018 are more likely to know the relationship status of female characters (47%) than male characters (36%). Lauzen's analysis also finds that a higher percentage of male characters (76%) possess an identifiable occupation than female characters (62%), while men are more likely to be depicted in their work setting actually working (62%) than female characters (46%). The 2018 report from the Annenberg Inclusion Initiative finds that women were significantly more likely than men to

be sexualised across three different variables (wearing tight or alluring apparel, nudity, and being referenced as attractive by other characters) in the top-grossing films of 2017, and across the 11-year sample, “the trends for hypersexualization variables were remarkably stable from year to year” (Smith et al. 2018). Moreover, the report finds that women were more likely to be depicted in parental roles than men (40.3% versus 33%) and in relationships (46.4% versus 41.5%). Together, these findings suggest that women’s roles are more limited in scope than men’s roles. In particular, the discrepancies in depictions of parenthood and relationship status suggest that women are less likely to be shown as having interior lives of their own and are more likely to be defined by their relationships to other characters.

There is evidence to suggest that stereotypes are also linked to age in film. A 2005 study by Lauzen and Dozier analysed depictions of gender and age in 88 of the 100 highest-grossing films of 2001 and found that women in their 20s and 30s were over-represented (relative to their share of the actual U.S. population), while men in their 30s and 40s were over-represented. The study also found that both men and women over 60 were underrepresented. The study also found that male age proved a more accurate linear predictor for occupational power and leadership than female age, and that “male characters in their 40s, 50s, and 60s played leadership roles significantly more often than did female characters in the same age categories” (Lauzen and Dozier 2005, 442). These findings add to those of Bazzini et al. (1997) who analysed a 100-film sample of top-grossing movies from each decade from the 1940s to the 1980s. This study found that older female characters were much more starkly under-represented than male characters – 38% of central male characters were estimated to be over 35 years old, compared with 8% of central female characters. The authors also found that there was a statistically significant positive correlation between age/intelligence and age/goodness for males, but negative correlations for females, while negative correlations between age/attractiveness and age/friendliness were significantly higher for females than males.

There are also pockets of research which are specifically concerned with gendered depictions by profession. One such area concerns representations of scientists in film. Weingart et al. (2003) analysed a sample of 222 films featuring scientists spanning eight decades and found that 82% of all scientists depicted were male. However, given that

scientific professions have tended to be male-dominated in real life, this does not necessarily constitute under-representation of women (Flicker 2003; Weingart et al. 2003). What is of note, though, is that the study found female scientists to be depicted as “younger and more attractive than their male counterparts, and they are lower on the career ladder” (Weingart et al. 2003, 283). These findings were also corroborated by Flicker (2003) whose analysis of approximately 60 feature films which include a woman scientist, spanning around 70 years, found that the female scientist “is remarkably beautiful and compared with her qualifications, unbelievably young” (Flicker 2003, 316). Similar results were found in Steinke’s (2005) content analysis of films depicting female scientists released between 1991-2001, where female scientists were found to be most often depicted as attractive, romantically involved, and clearly feminised, despite occupying high status professional positions. Flicker also found that when women scientists were depicted working in a team, they became subordinate to the male characters, and that their personalities are much more based on emotionality than male scientists.

This latter point is supported in a survey by Press and Liebes (2016) of the ten highest grossing films released in each year from 1990-2000, as well as the 120 highest grossing films of 2001. Discussing the films in the sample which depict women in successful professional roles, the authors find that “Hollywood chooses to represent female lawyers as ‘intuitive’ and ‘sensitive’”, and that one “also sees this in the scientists portrayed in the *Jurassic Park* films and in many other examples of professional characters”. The authors argue that there is a duality at play in many of these films, “with the ‘sensitive’ professional portrayed sympathetically, and a concomitant demonization of women professionals who don’t conform to this stereotype” (Press and Liebes 2016, 270). Similar patterns have been found for gendered depictions of law enforcement officers. King (2008) found that, when analysing all ‘cop action’ films (those films which feature heroes working in law enforcement and with a degree of violence enough to warrant at least a PG rating) released by American companies from 1967 to 2006, women were almost four times as likely (41.7%) than men (10.2%) to be depicted as rookies. The study also found women to be more likely to work undercover (where they rely on building personal relationships), more likely to be beaten or captured, and less likely to be involved in combat. Around 70% of women were shown taking on new romantic relationships across the films, compared with just 35% of men.

Taken together, the picture painted by empirical content analyses demonstrates a number of things for building understanding of the problem being indicated by the Bechdel test. One is that women's roles appear to be more stereotypical and more limited in range than men's roles, with female characters being more likely to be defined within the terms of heterosexual relationships. Furthermore, there is clear and consistent evidence that women are marginalised in narratives, at least in the sense that they are much less likely to occupy central roles in the story. It is also clear that a key dimension in which this marginalisation plays out is vocally, with women being massively under-represented in speaking roles in popular Hollywood cinema, and with striking consistency. In the next section, I explore the ways in which feminist film theory can help us to understand the nature of this problem.

Feminist film theory: the male gaze and “absence, silence, and marginality”

To establish a theoretical basis for understanding how women's voices become marginalised in Hollywood cinema, it is useful to briefly review how the question of gendered representation has been discussed in feminist film theory. The most influential idea in this area is the “male gaze” theory, as articulated by Laura Mulvey in her 1975 article “Visual Pleasure and Narrative Cinema”. Mulvey's theory, which is rooted in psychoanalytical perspectives, states that narrative cinema produces an essentially masculine viewing position. It is not possible to explain why this masculine viewing position arises in Mulvey's theory without discussing the complex psychoanalytic basis of the theory, and such a discussion is beyond the scope of both the chapter and the thesis. Here, I will simply note that the male gaze theory is based on the idea that cinematic representation is closely linked with scopophilia (pleasure in looking) and, for Mulvey, this means that the control of the gaze must be masculine in order to ensure that cinema enacts ideologically acceptable ways of looking. This need arises because, in psychoanalytical film theory, the relationship between spectator and image is seen as a process of “suturing” subjectivities. The patriarchal “male gaze” is therefore achieved by the co-ordination of three masculine “looks”: the look of the characters within the frame, the look of the camera upon the characters, and the look of the spectator at the screen. Each of these looks works together to achieve and maintain the male subjectivity.

According to Mulvey, the upshot of masculine control over these identificatory processes is that narrative structure becomes controlled by “an active/passive heterosexual division of

labour” wherein men are active, multidimensional subjects who control the narrative action and drive it forward, while women are passive, one-dimensional objects who freeze the narrative and are defined primarily by their “to-be-looked-at-ness” and their ability to provide unity for the male hero (Mulvey 1975). Regardless of the psychoanalytic roots of Mulvey’s ideas, the importance of the male gaze theory for this thesis comes from the fact that her theory has produced a number of claims which have largely defined how scholarly debates around representations of women have proceeded, including empirically-driven research designs. These claims include that there is an active/passive split in gendered representation; that the conventions of cinematic representation are organised around male subjectivity; that the figure of the active woman is problematic under the dominant ideology guiding cinematic production and spectatorship; that women are typically objectified and eroticised; that female desire is subjected to male desire; and that the role of women in mainstream narratives is secondary to the self-actualisation of a male hero. These claims have set the terms for most subsequent debates about gender in film across different fields.

Returning to the question of what these ideas tell us about the vocal dimension of women’s narrative marginalisation, it should be noted that Mulvey’s theory is clearly one rooted in the *visual* construction of subjectivity. However, subsequent work by feminist film theorists has built on this foundation to further explore the narrative consequences of masculine control over the conventions of representation. In this work, the link between the male gaze and dialogue becomes clearer. For example, E. Ann Kaplan discusses how the male gaze’s “controlling power over female discourse” has relegated women to “absence, silence, and marginality” (Kaplan 1983, 2). From this perspective, a consequence of privileging male desire and telling stories from a masculine perspective is that women have been denied “the ego-defining dimension of speech” (Haskell 1987, 7). Here the “to-be-looked-at-ness” Mulvey described is understood as requiring a kind of “seen and not heard” role for women in which they are only allowed to exist in the cinematic order insofar as they help secure unity and self-actualisation for the dominant male subjectivity. Thus, women are “ultimately refused a voice, a discourse” (Kaplan 1983, 7) in Hollywood narratives because it is not *their* story being told, they are figuring “only incidentally in the man's struggle to maturity” (Haskell 1987, 36). In this way, we can see how feminist film theory suggests that the consequences of how cinematic subjectivities are reproduced manifest at least in part

through dialogue: women's voices are marginalised in Hollywood cinema because the male gaze simply denies women "a place from which to speak" (Kaplan 1983, 8).

Despite the strength of these claims, and their influence over feminist film scholarship, there is a surprising lack of systematic empirical evidence on how much the female voice features in contemporary Hollywood cinema. Jennifer O'Meara (2016) has pointed out how the few books on the subject of the female voice in film have been focused on classical (pre-1960s) Hollywood cinema, and have been more theoretically-oriented rather than systematically empirical. Thus, "little academic research has been conducted on women's voices in relation to contemporary cinema" (O'Meara 2016, 1120). As Sarah Kozloff notes, most analyses of portrayals of women and other stereotyped groups in cinema "have concentrated on the level of plot and characterization" and have overlooked "how much the speech patterns of the stereotyped character contribute to the viewer's conception of his or her worth" (Kozloff 2000, 26). What we know about the distribution of dialogue comes from the content analyses reviewed in the previous section. However, these studies tell us about the distribution of speaking roles, not the distribution of dialogue. This is important, as knowing that 30% of the speaking characters in a given film (or a given year) are female does not tell us whether these characters actually spoke 30% of the lines. The problem could actually be much worse than this, with each female character still typically speaking less than the male characters. On the other hand, it could be that the dialogue generally balances out between men and women overall regardless of the gendered distribution of speaking characters. More research is therefore needed in order to understand how dialogue is distributed in Hollywood narratives before we can understand the role this plays in the marginalisation of female characters.

Relational perspectives on narrative marginalisation

One of the strengths of the Bechdel test is that it insists on a relational understanding of the narrative effects of masculine storytelling: it suggests that Hollywood narratives marginalise women's relationships unless those relationships are dependent on men. Here too, we could draw on feminist film theory's account of how the male gaze possesses a "controlling power over female discourse" (Kaplan 1983, 2) to theorise how, without their own discourse, female characters are defined by their relationships to men. However, in this section I wish to move away from feminist film theory and bring in scholarship which

situates the relational dimension of the research problem more directly within ongoing debates about the relationship between feminism and popular culture.

The degree to which females have continued to be underrepresented in speaking roles in film may come as a surprise, given real gains made by women in American society in the period since the classic feminist film studies by Laura Mulvey and Molly Haskell were first published in the 1970s. Mainstream cinema has, as a consequence of social change, seen modifications of the kinds of screen portrayals for women, with an increase in images of women whose jobs and lifestyles acknowledge the feminist gains of recent decades. However, this has not led to significant substantive change in overall representation, as reflected in the stability of the figures presented above concerning the prevalence of women among central and speaking roles in popular cinema. To explain why, we need to turn to post-feminist approaches to film studies to see how film roles that are ostensibly feminist may not always be so (and may barely pass the basic Bechdel test). The changes in media culture identified by post-feminism scholarship indicate that we have moved into a post-Mulveyan moment wherein simple binaries such as active/passive and subject/object, are no longer sufficient for understanding the complex, ambiguous and often contradictory images of women we see in contemporary media texts. As such, this scholarship provides a valuable tool for developing a more nuanced understanding of how women are relationally positioned within Hollywood narratives.

Before explaining why post-feminism is useful for thinking about film narratives, it is necessary to first define and contextualise the concept. This is not an easy task as “definitive conceptualizations of postfeminism are as elusive as references to postfeminism are pervasive” (Tasker and Negra 2007, 19). However, one of the common threads through the various perspectives on post-feminism is that the phenomenon describes changes in the relationship between feminism and popular culture which play out in and can be traced through popular media texts (Hollows and Moseley 2006; Tasker and Negra 2005). In other words, the tendencies, tactics and ideological values of post-feminism can be found by identifying trends in how feminism has been presented in movies, television and other forms of popular culture. The goal of this section is to introduce and illustrate those elements of the post-feminist sensibility (Gill 2007) characterising many contemporary media texts that can help us to understand how even ostensibly empowered female

characters can come to be positioned in narratives in ways which limit and contain the terms of their empowerment within relational frames.

One of the defining characteristics of the post-feminist sensibility that is relevant for this thesis is the often contradictory and ambivalent relationship between post-feminist media discourses and feminism. Early conceptualisations of post-feminism as a straightforward conservative “backlash” against the feminist gains of the 1960s and 70s saw the media as a mouthpiece for anti-feminist discourses which articulated the idea that feminism had been successful, but that it had ultimately failed women and left them burdened and unhappy with their new lot (Faludi 1992). However, these ideas were later complicated to account for the complex and often contradictory ways in which feminism is invoked in post-feminist media texts (Gill 2016; McRobbie 2004; Tasker and Negra 2007). As Angela McRobbie notes,

“post-feminism positively draws on and invokes feminism as that which can be taken into account, to suggest that equality is achieved, in order to install a whole repertoire of new meanings which emphasise that it is no longer needed, it [feminism] is a spent force” (McRobbie 2004, 255).

There are three things happening here: feminism is positively drawn on, discursively moved into the past, and re-inscribed with new meanings which undermine the goals of feminism. Whereas the backlash thesis saw media culture construct feminism as the villain at the heart of contemporary gender anxieties, this more nuanced reading acknowledges how post-feminist media texts often espouse the ideals of feminism in order to stake a claim in the negotiation and co-option of its legacy. In both narratives, feminism is seen as having achieved its goal of equality, effectively ending the need for a collective struggle for women’s rights (McRobbie 2004; Modleski 1991; Tasker and Negra 2005). However, by acknowledging that “postfeminist discourse deploys a variety of positions with respect to feminism” (Tasker and Negra 2007, 8), we can explore “how the popular operates as a site of struggle over the meanings of feminism” in ways that simple backlash narratives lack the flexibility to address (Hollows and Moseley 2006, 8).

How then is feminism negotiated and co-opted in post-feminist media culture, and how can this help us to understand the problem underlying the Bechdel test? Post-feminist media texts appropriate elements of feminism, such as “ideas of liberation, independence and freedom”, whilst simultaneously detaching those elements “from the feminist discourses

that anchored their radical meaning” (Hollows and Moseley 2006, 10). Of particular relevance here is that this appropriation and depoliticisation of feminist ideals leads to a focus on individualism. As a result, empowerment is celebrated as a goal in post-feminist culture, though “the empowerment aimed for is most often personal and individual, not one that emerges from collective struggle or civic participation” (Banet-Weiser 2012, 16). Through this process of simultaneously evoking and rejecting feminism, “(young) women are offered particular kinds of freedom, empowerment, and choice ‘in exchange for’ or ‘as a kind of substitute for’ real feminist politics and transformation” (Gill 2011, 64). Thus, the scholarship on post-feminism demonstrates that an increased visibility in the espousal and recognition of feminist ideals in media discourses does not equate to a rise of more feminist narratives.

These post-feminist characteristics have been observed in and found to operate through a range of popular media forms. These include news media (Faludi 1992), brand culture and “commodity activism” (Banet-Weiser 2012), magazines (Gill 2007) and television series (e.g. Arthurs 2003; Brunson 2000; Hermes 2006; Van Bauwel 2018). Certain texts have emerged from these debates as prototypical examples of post-feminist texts, including the chick lit boom (examples include Helen Fielding’s *Bridget Jones* series and Sophie Kinsella’s *Shopaholic* series), and television shows *Sex and the City* (1998-2004), *Ally McBeal* (1997-2002) and *Desperate Housewives* (2004-2012). Each of these texts can be seen to “take feminism into account” (McRobbie 2004) through their focus on “liberated” and ostensibly independent, empowered female protagonists. Crucially, however, the modes of independence, freedom and empowerment being offered are contained within individualist frames which allow for stories of empowered individuals, but not stories of collective action or structural inequalities (Gill 2016).

This systematic denial of narratives of collective empowerment and insistence on reinscribing feminist empowerment as individualism shapes the range of available representations of how women can relate to one another. These ideas provide a valuable tool for building a deeper understanding of the problem indicated by the Bechdel test, as understanding how post-feminist media culture operates in Hollywood cinema can help us to understand the relational dimension of why so many films fail the test despite the rise in strong female characters. One important strand of scholarship on post-feminism and

Hollywood cinema has focused on examining genres which can be seen as post-feminist, such as chick flicks (e.g. Ferris and Young 2008) and the “backlash films” of the late eighties and early nineties (e.g. Faludi 1992) to explore the post-feminist tropes at work in these films. However, we are not only interested in identifying post-feminist genres because, as noted earlier in this chapter, genre conventions have a significant effect on the types of narrative produced in Hollywood. Of particular interest to this thesis is how an understanding of post-feminist media culture can help us to understand how contemporary “Hollywood feminism” reproduces these individualising patterns more generally across many genres in popular cinema.

One feature which has been identified as critical in this regard is the trend beginning in the 1980s of Hollywood films “paying lip service” to feminism “by inserting a strong woman character into the narrative” where there previously would have been none, but ultimately undermining the feminist potential of these characters through the individualisation and depoliticisation of their empowerment (Press and Liebes 2016, 270). These women are “empowered” because they have jobs which demonstrate the “success” of feminism, but their isolation among men and the marginalisation of relationships with other women is unchallenged and normalised. In this way, “Hollywood feminism plays on the ambiguity of women’s desire to see stronger roles for women in Hollywood films” (Press and Liebes 2016, 270), though the ostensibly empowered female character’s strength is itself both ambiguous and individualised. Where positive female relationships can be found in films of this period, these friendships primarily work to support more central heterosexual relationships or family relationships which pull the woman back into the domestic sphere (Boyle and Berridge 2012; Hollows 2006). Thus, “although they show women working, excelling in their careers, and pursuing friendships with other women, many of these films still follow in the well-worn path of earlier female friendship portrayals” (Hollinger 1998, 5).

For example, discussing Jennifer Lopez’s character in Steven Soderbergh’s *Out of Sight* (1998), Holmlund writes that “as was the case with many earlier postfeminist screen heroines, Karen is a competent professional, an FBI marshal. She has her own small shiny gun, given her by her proud papa, but no mother or women friends” (Holmlund 2005, 118). While the individual characterisation appears to take into account feminism, this is contained through a narrative in which the strength and unity of the strong female

character are achieved on depoliticised heteroromantic terms, and in which the central female character is isolated from other women. A different kind of example is offered by Jodie Foster's character Clarice Starling in *The Silence of the Lambs* (1991). Although Starling's individual characterisation as an FBI agent who shows considerable poise, control and skill in the face of professional maltreatment and danger certainly construct her as a "strong female character", it is notable that the character is isolated among men in a narrative which ultimately revolves around the mutual respect developed between Starling and imprisoned killer Hannibal Lecter (Anthony Hopkins). In this case the strength of the character is defined not through a sexual or romantic relationship, but remains contingent on masculine approval. The problem, then, is that, as Charbonneau and Winer put it, "even if the heroine wears a stethoscope, the point of the narrative remains unchanged: The essential bonds are made with men, not with women, who can never be fully trusted" (1981, 26). This has the effect of not only defining empowerment in individualistic terms, but also of sidelining positive female relationships. The relational approach developed in this thesis aims to draw on and test claims such as these, and to consider how the "strong female character" is positioned in relation to the other characters around her.

A useful framework for thinking about the questions raised in this section is offered by Sutherland and Feltey (2016), who suggest the usefulness of Amy Allen's tripartite model of power for thinking about gendered representations in Hollywood narratives. According to this model, power can be conceptualised in three ways: power-over, power-to, and power-with (Allen 1998). Power-over is defined as domination, and the ability to subject another to one's will and constrain their actions. Power-to, on the other hand, is defined as the personal sense of mastery, control and ability to overcome obstacles that enables one to act (even in spite of subordination and domination by another). The third sense of power, power-with, is defined as a collective empowerment achieved through solidarity. For Allen, it is the power-with sense of power that allows discussions of "empowerment" to satisfy the feminist concern with solidarity and collective action to overturn dominant systems, as it is a "kind of power that diverse women can exercise collectively when we work together to define, and strive to achieve, feminist aims" (Allen 1998, 32). Much of the political potential of feminism is therefore activated through a power-with sense of empowerment.

Sutherland and Feltey take Allen's model of power and use it to assess the representations of women and power found in a number of "feminist films". These films were selected by administering a short survey asking respondents for examples of films they would label feminist films, as well as those "that portray powerful women". Participants were drawn from a number of purposively identified sources, including e-mail lists, feminist websites, and social media channels. Responses were narrowed to feature films mentioned at least three times, resulting in a final pool of 134 films from 1970-2012, which were then sampled to extract a final 18 films representing the early, mid and late stage of each decade. After analysing representations of power in depth in each of these films, the authors find that Hollywood's strong female characters have primarily been defined by stories of power-over and power-to modes of empowerment. As a result, in Hollywood "empowerment is packaged as individualism; challenges are resolved through individual perseverance, strength, and exceptionalism. Rare are the stories of collective struggle for social justice; even rarer are stories about women's collaborative efforts to challenge patriarchal social structures" (Sutherland and Feltey 2016, 11). These findings suggest that contemporary Hollywood feminism reproduces models of post-feminist heroines whose power is ultimately contained within individualist and depoliticised frames. These claims will be evaluated in this thesis, as a network-based approach allows us to situate our understanding of the strength of female characters within a consideration of the kinds of relationships those characters enact in the narrative.

Gendered representations of female friendship

The relational perspectives discussed in this section are helpful to this thesis because they suggest that in order to understand the complex and nuanced representations of women in contemporary cinema, we need to understand the kinds of relationships through which the narratives are enacted. The power-with perspective establishes that the kinds of relationships available to female characters – even strong, independent female characters – are revealing about the type of empowerment those characters can access, and whether the character's strength is rooted in individualism, heteronormative romance, or collective empowerment. Here the relational part of the Bechdel question becomes central to the thesis, as it asks us to consider not only the ways in which Hollywood narratives marginalise individual women's voices, but also the friendships between women. In a sense then, the Bechdel test reveals the marginalisation of what we might call female homosociality in

mainstream narratives. Here, I use the term homosociality to refer broadly to same-sex friendships and bonding.

Typically, work which has focused directly on these kinds of questions has centred around discussion of “female friendship films” (e.g. Hollinger 1998; Winch 2012). For the most part, these debates are not directly relevant to the problem at hand, as we are less interested in the particular characteristics and dynamics of female friendship films than we are in how representations of female homosociality are marginalised *in general* in mainstream Hollywood cinema. However, what the scholarship on representations of female friendship in cinema can add to the approach developed in this thesis is a clear sense that representations of homosociality in Hollywood are gendered in asymmetrical ways. The quantitative asymmetry is found in the sheer difference in frequency with which male friendship is depicted compared with female friendship. Scholars have noted how “On the one hand, male friendship is a serious, even profound, theme, a vehicle for exploring and affirming basic humanistic values”, while female friendship, on the other hand, is “denied or demeaned” (Charbonneau and Winer 1981, 25). As a result of this denial, female friendships are simply much less common in Hollywood narratives than male friendships. In a sense, this quantitative imbalance explains why scholarship on female friendship has focused so much on the “female friendship film”: female friendship is such a secondary concern in mainstream Hollywood narratives that it is mostly found in those few narratives which concern themselves with the subject directly. Thus, while male friendship and bonding is a staple of mainstream Hollywood plots, female friendship is effectively forced to become a genre in itself, one whose appeal is seen as being primarily for a female audience (Hollinger 1998).

When female friendship is depicted, the nature of the representation often differs from images of male friendship. A good example of this is provided by Boyle and Berridge (2012), who examine a number of recent homosocial comedies to explore why “narratives which focus on new adult friendships between women are extremely rare, whilst the ‘bromance’ is flourishing” (13). The authors note how in “bromance” films and male friendship comedies (examples include *Due Date* (2010), *I Love You, Man* (2009), and *Step Brothers* (2008)), the male characters’ heterosexual relationships (if depicted at all) typically already exist when the male friends first meet, allowing the narrative to focus on the emerging friendship.

However, in female-centred homosocial comedies (such as *Bridesmaids* (2011), *Bride Wars* (2009) and *Sex and the City* (2008)), the intensity of female bonding is diluted by either focusing on larger groups of friends or on pre-existing rather than emerging friendships. The depiction of pre-existing relationships allows the narrative to focus on the emergence or development of heteroromantic interests for the friends rather than the intensity of the bond between the women. Thus, while Hollywood is rife with examples of films of men growing to like each other and ultimately becoming friends, this is much rarer in representations of female bonding where the preference for pre-existing female friendships allows these relationships to be narratively marginalised and “pressed into the service of heterosexuality” (Boyle and Berridge 2012, 4). The relevance of these ideas to this thesis is that by noting how the different ways in which male and female friendships are positioned within narratives “speaks to the enduring marginalisation of women within Hollywood, particularly women who are not centrally concerned with men” (Boyle and Berridge 2012, 13), we can further build a deeper understanding of the relationality and complexity of the underlying problem being indicated by the Bechdel test. The network-based analytical approach this thesis develops provides an empirical platform for exploring the gendered asymmetries in how character relations structure Hollywood narratives.

Summary

Recognising the post-feminist tactics at work in mainstream film narratives is important for understanding the research problem at hand because it illustrates how ostensibly “empowered” female characters can be undermined through the individualisation and depoliticisation of their social circumstances. This not only asks us to think more carefully about the type of empowerment on offer in popular Hollywood film narratives, but it demonstrates the inadequacy of talking only about the representation of women in film as a question of individual characterisation. If we want to understand how women come to be marginalised within popular film narratives, we need to look beyond the “strong female character”, and consider the ways in which women relate to the other characters around them. However, work exploring female homosocial relationships has tended to focus on female friendship films, rather than exploring how gendered homosociality operates more broadly in Hollywood narratives that are not explicitly about homosocial bonding. Thus, our understanding of how gendered character relations are structured in popular cinema more

broadly remains limited, and more research is needed to build understanding of the relational dimension of female characters' marginalisation.

Part 3: Towards a character network approach to the representation of women in film

The evidence and ideas reviewed in Part 2 of this chapter demonstrate that there are various underlying narrative forces which might explain why so many films fail the Bechdel test. In particular, there appear to be two dimensions of the narrative marginalisation. The first is a quantitative question of "how much?": how much do women speak in popular Hollywood cinema? How many women appear in mainstream film narratives? The second is a relational question of "with whom?": with whom do women interact in popular film narratives? What constraints operate on the representations of relationships between female characters? A key argument of this thesis is that a character network approach allows us to operationalise both the "how much?" dimension and the "with whom?" dimension together. As such, it provides a method for exploring what E. Ann Kaplan refers to as "female positionings" in film texts, revealed through an analysis which focuses on "the larger structuring of the narrative and on the placement of the woman within that narrative" (Kaplan 1983, 2). In order to explain and contextualise these claims, I will outline in this section what social network analysis (the broader approach underpinning the idea of character networks) is, before explaining how it has been used to date to analyse fictional narrative texts. In the process, I aim to explain what is meant by the "character networks approach" to studying texts, and illustrate why the approach would be useful for exploring the substantive questions raised so far in this chapter about the ways female characters are positioned within popular film narratives.

Social network analysis

It is useful to begin with a brief overview of what social network analysis is and how it has been used (for fuller reviews than I can provide here, see Borgatti et al. 2009; Scott 2017; Wasserman and Faust 1994). On one level, social network analysis (SNA) can be understood as the history of study of how individuals are embedded within social structures consisting of interpersonal relations and interactions. Commonly, social network-based approaches aim to represent these networks (the underlying patterns of relations and interactions) as a graph containing a set of actors (e.g. individuals) and a set of links between them (e.g.

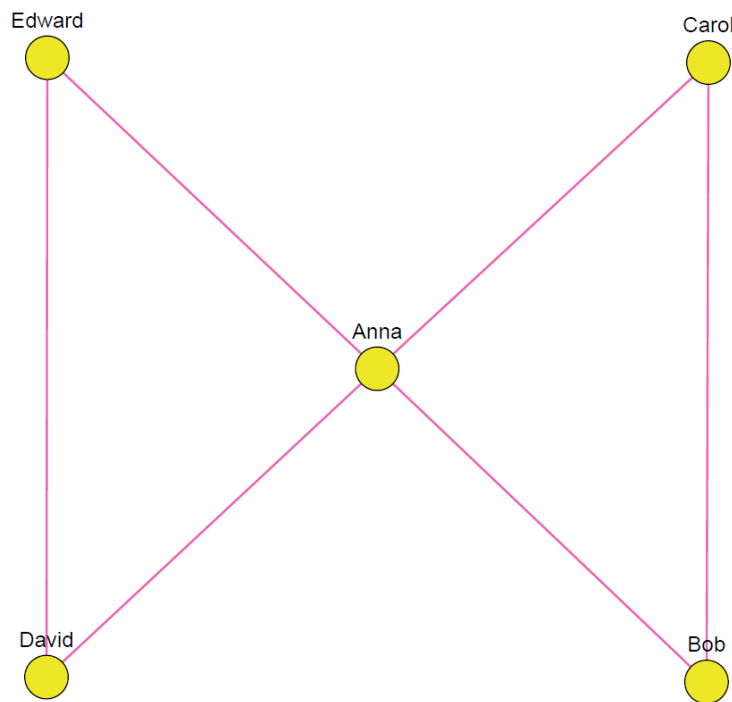
Person 1 is friends with Person 2). The actors in a network graph are usually called nodes or vertices, and the links between them are usually called ties or edges. Ties can be either undirected (shared mutually between two actors, as in an edge representing the relation ‘*i* is colleagues with *j*’) or directed (wherein the tie has a distinct sender and receiver, as in an edge representing the relation ‘*i* trusts *j*’ – *j* may or may not reciprocate). A graph can be represented as an adjacency matrix, which is a matrix with the same number of rows and columns, each corresponding to a member of the set of vertices. The cells in an adjacency matrix indicate the edges between the nodes. Figure 2.5 shows an example of the adjacency matrix for an undirected graph of friendship ties between five individuals.

Figure 2.5. Adjacency matrix showing mutual friendship ties between five nodes.

	Anna	Bob	Carol	David	Edward
Anna	0	1	1	1	1
Bob	1	0	1	0	0
Carol	1	1	0	0	0
David	1	0	0	0	1
Edward	1	0	0	1	0

The graphs can be plotted visually, with nodes drawn as points and edges between nodes drawn as lines between these points. This visualisation of a social network graph is called a sociogram. Figure 2.6 shows an example of what the undirected friendship network represented in Figure 2.5 looks like represented as a sociogram. This kind of data representation allows us to operationalise and analyse the underlying social structures which comprise the graph. For example, we can see in Figure 2.6 that there are two complete triads of friends, [Anna, David, Edward], and [Anna, Bob, Carol], with only one individual common to each group (Anna). This simple diagram provides a good example of the kinds of patterns which form the basis for SNA-based lines of inquiry.

Figure 2.6. Sociogram representation of the undirected graph of friendship ties shown in the adjacency matrix in Figure 2.5.



SNA research has been concerned with a diverse range of questions including (to provide just a few examples): when we find clusters of people similar to one another (homophily, in network terms, or the principle that “birds of a feather flock together”), is this because people choose to form relationships with people like themselves, or because people become more similar to those with whom they share relationships? (e.g. McPherson et al. 2001); how can we identify the most central individuals in a network, including different perspectives on ‘centrality’ such as those who are most popular and those with the power to control flows of information or resources through a network? (e.g. Freeman 1978); do social structures develop according to certain socio-psychological principles, such as the idea that if I like A and dislike B, but A likes B, this produces a tension or ‘imbalance’ that will resolve toward balance over time (Cartwright and Harary 1956)?; how do people use their personal networks to access different kinds of support or social capital? (e.g. Crossley et al. 2015; Small 2017); and how can we use statistical models to understand network structures and processes? (e.g. Lusher et al. 2012; Snijders 2010).

To answer questions such as these, an array of powerful theories and methods for understanding how social networks work have been developed from a number of disciplines, and these tools have proved useful in many diverse contexts. For example, networks of relations between elite families in Florence (such as marriage ties and financial ties) were used to explain the structural power of the Medici family in the emergence of the Florentine Renaissance state (Padgett and Ansell 1993); the micro-mechanisms of partner formation in adolescents' romantic and sexual networks were explored to assess the implications of network structure for efforts to reduce sexually transmitted disease diffusion among adolescents (Bearman et al. 2004); and networks of murders among gang members in Chicago were used to explore how gangs and their members' patterns of murder reflect their positioning within these networks, revealing the social structure of gang homicides (Papachristos 2009). What each of these applications show is that social network analysis is a useful and powerful tool for researchers who are interested not only in the outcomes of independent individuals (as, for example, in the statistical analysis of social surveys), but on how those individual outcomes are dependent on social relationships and connections. Thus, it offers a promising tool for examining the gendered distribution of character relations in Hollywood narratives as it allows us to operationalise many of the ideas discussed in this chapter. In particular, it allows us to consider how women are positioned within the character structure of a narrative, and look for the mechanisms which might explain how women come to be isolated or marginalised in these narratives. In the next section, I review how SNA has been applied to fictional texts in the existing literature.

Character networks

With SNA introduced, it is now possible to trace what I refer to throughout the thesis as the "character networks" approach to studying fictional texts. A character network is simply a social network in which the nodes are characters in a fictional text, and the links between them represent some kind of relation or interaction. The idea of using network-based methods for analysing relations between characters in fictional texts is not new, and there now exists a considerable and growing number of character network-based studies. Contributions to this literature have come primarily from the fields of computational linguistics, artificial intelligence research, digital humanities scholarship, and literary analysis. However, it should be noted that these studies vary significantly in their methods

for constructing the networks, the way they define ties, their scope, and their audience. In this section, I aim to identify the most central ideas and contributions thus far in the development of network-based approaches for studying narrative texts, to help explain where my own approach fits within this area.

Most character networks research has been concerned with the extraction and analysis of literary character networks which represent novels and plays (e.g. Agarwal et al. 2012; Elson et al. 2010; Grayson et al. 2016; Jayannavar et al 2015; Kydros et al. 2015; Min and Park 2016; Moretti 2011; Sack 2013; Waumans et al. 2015). From the perspective of digital humanities scholarship (a growing area of research using computational methods to conduct research in the arts and humanities), literary texts are a natural choice for network-based study due to the ready availability of machine-readable text as a data source. The use of computational methods allows the amounts of data in these texts, which would be tortuous to extract manually, to be extracted quickly and relatively easily. As a result, many of the character networks publications to date have been conducted from a computational standpoint. These papers are primarily concerned with the development and evaluation of tools for automatically extracting networks, rather than on answering research questions about the texts themselves. For now, I will set aside discussion of these automatic extraction methods, as I will consider such questions in more detail in the next chapter.

Another perspective which has informed the interest in literary character networks is more concerned with character networks as a platform for serious literary analysis. This strand of the character networks literature stems largely from the contribution of Franco Moretti (2011), who developed a theoretical basis for considering literary works as character networks. Moretti draws on the work of literary analyst Alex Woloch (2003), whose book *The One vs. the Many* introduces key concepts for thinking about the roles of characters within novels. Woloch argues that debates in literary scholarship about how to understand the roles of major and minor characters can be usefully conceptualised as how much “character-space” the character occupies in the overall “character-system”. For Woloch,

the emplacement of a character within the narrative form is largely comprised *by* his or her relative position vis-a-vis other characters. If the character-space frames the dynamic interaction between a discretely implied individual and the overall narrative form, the character-system comprehends the mutually constituting interactions among all the

character-spaces as they are (simultaneously) developed within a specific narrative (Woloch 2003, 18; italics in original).

Moretti (2011) points out that Woloch's ideas about the emplacement of characters within a narrative based on their relative positioning to other characters is essentially a question of network structure. He goes on to illustrate this notion by constructing a character network representation of Shakespeare's *Hamlet*, where an undirected tie between a given pair of nodes indicates that any amount of words flowed between those characters. Moretti highlights the ties connected to a number of central characters (Hamlet, Claudius, Gertrude, Ophelia) in order to illustrate their respective "space" in the narrative, and how the social world of the narrative comprises the different social environments in which its characters are to be found. He also calculates the degree of the nodes in the network (in network terminology, the number of edges connected to a node is its "degree") in order to analyse the "hierarchy of centrality" that exists in the plot based on this degree distribution (Moretti 2011, 86). Moretti acknowledges the simplicity of his network representation, which lacks any information about the frequency or direction of interactions between characters. Moreover, the ways in which he draws on SNA are tentative and analytically simplistic. However, Moretti's paper is an important contribution because it remains clearly focused throughout on how network analysis can be leveraged to gain insight and understanding into the specifics of the narrative text. As such, if the research on methods for the computational extraction of character networks from texts represents the technical pole of research in this area, Moretti's deployment of the concept represents what we might call the interpretive pole.

Other research lying closer to this interpretive pole has generally been concerned with questions such as the validation of literary theories, or exploration of how the social worlds of the narrative texts compare with real social networks. For example, Elson et al. (2010) computationally extract social networks from 60 well-known nineteenth-century novels written by 31 authors, based on the detection and attribution of quoted speech. The edges in their networks represent that dialogue was exchanged between two characters, with edges being weighted by the frequency and length of the conversations. The authors use these networks to explore a number of hypotheses related to literary theory on the relationship between urbanity/rurality and character interactions in Victorian novels. They use network analytical tools and concepts such as clique detection, density and network size

to explore these questions, finding that urban novels' character networks were no larger than those found in rural novels; that, contrary to the suggestion of some literary theorists, the amount of dialogue does not decrease as the number of characters increases in the novels; and that the mode of narration (first person versus third person) was a much stronger predictor of the average degree of characters in a novel than the urbanity/rurality of its setting. Another example is offered by Sack (2013), who compares the social networks of Cervantes' *Don Quixote*, Charles Dickens' *David Copperfield*, and Virginia Woolf's *Mrs. Dalloway*, again using density, clustering, and degree measures to compare the relationship between the texts' social worlds and the literary movements and genres to which they belong. Sack argues that this approach reveals "that narrative structure, such as plot, genre, and characterization, is intimately related to network structure" (Sack 2013, 185).

The character networks approach has been extended to film narratives, but the literary analysis-oriented perspective described above has had little impact on these studies. Film-based character network research has primarily been concerned with methods for large-scale computational extraction of networks from film corpora rather than questions of how a network-based approach can aid the reading and analysis of particular film texts. These studies are thus conducted from a primarily computational standpoint, aiming to develop tools that extract networks automatically from scripts (Agarwal et al. 2014; Gil et al. 2011; Mouchid et al. 2018), video (Lv et al. 2018; Weng et al. 2009) or subtitle files (Kagan et al. 2019). To an extent, this may reflect a broader history of film being seen as a form of "mass" culture, more suited to consideration at scale than to serious analysis at the textual level (e.g. Adorno and Horkheimer 1947). In any case, there are very few examples of studies developing the use of network-based analysis for understanding film texts as narratives. One very recent example comes from Kagan et al. (2019) who create a large corpus of over 16,000 film character networks using subtitle files sourced from the internet, and aim to explore the movie industry's "gender gap" using this data. Subtitle files usually contain only the timestamp the text is to appear on screen, and the content of the dialogue; rarely is the character who speaks the dialogue annotated. Edges in their networks therefore simply represent the co-occurrence of character names within a given temporal window, meaning that an edge tells us that two characters' names were both spoken within a certain window of time. As such, the links do not represent direct character interaction, despite the fact that the authors continually refer to the network as comprising "interactions" (e.g. "Romance is

the genre with the most interaction among women”, Kagan et al. 2019, 16). Moreover, by focusing on finding patterns in network-metrics at a very large scale, the study spends little time considering how the network structure can be understood as corresponding to narrative structure in the actual texts. For example, much of their analysis is based on the use of node-level measures such as betweenness, closeness, and page-rank which, as I will argue in detail in Chapter 5, are very limited in what they can tell us about the role of a character within a narrative.

Finally, it is useful to contrast the character networks approach with the related but largely disjunct body of work concerning “narrative networks” (e.g. Abell 2004; Bearman and Stovel 2000; Padgett 2018; Smith 2007). Work on narrative networks has broadly aimed at mapping the temporal relations between narrative events to try to build a picture of how people construct identities and shared meanings through the assembly of historical events into narratives. As such, the narrative networks literature takes a different conceptual approach, as it is primarily concerned with understanding narrativity as a dimension of social life, rather than the study of fictional narrative texts. Some of the insights of this work, such as the importance of time for understanding narrative phenomena, are directly relevant to this thesis and will be drawn on where relevant. However, due to the differences in aims, objectives and methods pursued in the two approaches, it is useful to separate character networks and narrative networks as two distinct sub-fields of network research.

To summarise, reviewing the diverse work in this area highlights that perhaps the most important way in which existing character network studies vary lies in whether their interest is in understanding the narrative, the properties and topology of the network, or the methods used for automated extraction of network data from texts (Labatut and Bost 2019). Although there has been an increase in the number of publications applying SNA to fictional texts, these have primarily been conducted by researchers working in computer science, computational linguistics, and artificial intelligence research. This is particularly true for film-based character networks research, where contributions have overwhelmingly been technically-oriented. As a result, scholarship geared towards narrative analysis and interpretation is relatively scarce in the character networks literature. Moreover, the outlets in which research in this area has been published have varied, with contributions appearing scattered across pre-print repositories, conference proceedings (the primary publishing

outlet for computational scientists), and, to a much lesser extent, edited book chapters and peer-reviewed journals. The upshot of all this is that despite their number, existing character networks studies have lacked an internal dialogue and consistency, and this has hindered their development as a tool for doing meaningful analysis of narrative texts. The task of evaluating what a character networks approach can add to our understanding of the various dimensions of female characters' narrative marginalisation explored in this chapter is therefore a central goal of this thesis.

Chapter summary

The Bechdel test is widely used as a lens through which to discuss the representation of women in film, but little work has been done to understand how many and which films pass the test, or to link the test to the underlying narrative forces which might explain why so many films fail its simple criteria. Empirically, it seems that passing the test is linked to female authorship, genre conventions, and the narrative character structure of the stories. This confirms that the Bechdel test is pointing to underlying storytelling conventions, and that these conventions are multifaceted and need to be further unpacked to understand how the narrative marginalisation of female characters works. Turning to the scholarly literature helps us to identify key evidence and ideas which can help us to build a deeper understanding of the problem indicated by the test. For example, there is evidence from content analyses that there is a prevalence problem for women in popular cinema, with female characters being consistently and significantly underrepresented in central roles and speaking roles. Feminist film theory suggests that this marginalisation is a result of Hollywood's male gaze, which denies women a voice and a discourse of their own. From this perspective, one aspect of the problem that the Bechdel test is indicating is that women's voices simply do not feature much in Hollywood narratives because the stories are told from a male point of view. However, we do not know very much about how much women actually speak or to whom in popular cinema.

Moreover, scholarship on post-feminism and gendered representations of homosociality demonstrate the inadequacy of thinking about the representation of women and film only as a problem of individual characterisation. The presence of the ostensibly empowered "strong female character" does not preclude the possibility that narratives can undermine women in narratives by isolating these characters among male characters, pitting women

against one another, and continuing to define women's roles in conventional heteroromantic or individualistic terms. These ideas highlight the need for a relational language for talking about the representation of women and film. This points to the usefulness of social network analysis as a toolkit for thinking about how characters are positioned in narratives and allowing us to operationalise the idea of "female positionings" in popular cinema. However, the character networks approach is nascent and underdeveloped. In the next chapter, I turn to the question of *how* we might configure a character networks approach in order to capture those underlying aspects of how women come to be marginalised in the narratives of popular Hollywood films.

Chapter 3 – Developing a character network methodology

Introduction

Chapters 1 and 2 set out the research problem and the rationale for exploring a character networks approach to investigating this problem. However, there are still a number of important decisions involved in choosing how to capture film texts as character networks. In this chapter I will explain how the particular operationalisation of film character networks developed in this thesis was arrived at, and which decisions were taken in trying to identify the data representation which would offer the most useful platform for exploring the narrative marginalisation of women in Hollywood. First, the chapter will explain the development of the methods for collecting data from films, focusing on questions such as the source of the data, the definition of ties and the format for representing the data. Then, I will explain the choice of films to study and describe the rationale and process of building a corpus of 27 blockbuster films designed to provide a platform for exploring scholarly debates about the role of active women in Hollywood using character networks. Finally, I reflect on the usefulness of different types of ties.

Methods

Network extraction methods

When considering how to construct character networks from films to explore the research problem, the first step was to answer two related questions: (1) should the networks be extracted by automated or manual methods?, and (2) which data source should be used for the extraction of networks? As noted in Chapter 2, there are several examples of movie character network extraction methods which rely on automated tools and natural language processing (NLP) to identify characters from film data (e.g. Agarwal et al. 2014; Gil et al. 2011; Kagan et al. 2019; Mourchid et al. 2018). These approaches show promise for the ability to handle large numbers of films and explore film-level explanations in large corpora. However, a number of factors limit their utility for the kinds of substantive questions this thesis aims to explore. One practical concern is that, as with other large-scale computational approaches to document classification, the computational extraction method introduces data quality concerns such as how to deal with named-entity recognition (NER) issues such as nicknames, aliases and inconsistent naming conventions.

Most importantly, however, the automated approach relies on co-occurrence of characters within some pre-defined textual boundaries as the basis for constructing network links, and this is not equivalent to direct interaction between characters. For example, screenplay-based extraction methods typically start by identifying scene boundaries (which, in standard screenplay formatting are marked by “INT.” or “EXT.”, describing an internal or external setting), and then identifying each speaking character (usually marked by the character’s name in capital letters on its own line) present between two scene boundaries. Edges in the network are then defined by creating a link between each character appearing in the same scene. Thus, edges in such a network represent that two characters spoke aloud in the same scene, but we do not know whether the characters actually spoke to each other. From the perspective of the research problem introduced in Chapter 2, this is a significant limitation of the approach as we are specifically interested in the ways in which female characters interact with the characters around them; if two women speak a lot in a scene, but only to men and not to each other, this is exactly the kind of thing we would want to be able to identify. Automated NLP-based methods cannot therefore offer the kinds of insight into the character interaction system that can be offered by human-coded networks, which can identify the actual patterns of direct interaction. As a result, the decision was taken to manually extract the networks from films.

Once this decision was taken, there remained the decision of what to use as the data source. In practice, this entailed a choice between using scripts or video files. Video files were identified as the best method as the utility of film scripts as a data source is hindered by a number of factors. The first is that the availability of scripts online is limited, significantly restricting the number of films available for analysis. While there are a number of websites which collect screenplays (such as IMSDb, the Internet Movie Script Database), there does not seem to be much of a pattern for determining which scripts are made available on these sites or why. This effectively removes the option of purposely selecting films to analyse, as it is relatively unlikely that a script will be available for an independently selected film. Subtitle files (text files containing lines of dialogue and their associated timestamps which video software can use to display subtitles on-screen) overcome this problem due to their ready availability (see Kagan et al. 2019), although subtitle files do not usually contain the name of the speaking character, making it impossible to use them as a source for the extraction of character interactions. The second limitation of scripts is that,

even when screenplays are made available, they are often in the form of working versions (such as first drafts) and these can (and often do) differ substantially from the final version of the film which appears for public viewing. In many cases, there are entire characters and storylines which are either removed or added to scripts between these early stages and the screen. Transcripts overcome this problem by providing a much closer approximation of the final film cut, but transcripts are even more scarce in their availability and are usually fan-created and unmoderated, introducing a lot of variation in quality and accuracy. Insofar as we are interested in analysing the images people actually see, scripts are therefore of limited use. For these reasons, the decision was taken to extract the character networks from the video file of the film. All major film releases are readily available for home viewing (either via DVD, digital video or online streaming services such as Netflix), and these releases reflect the versions of the film seen by audiences, mitigating each of the issues pertaining to other data sources discussed here.

Definition of ties

Once the decision to manually extract character networks from the video of the film was taken, the second issue to address was how to define network ties. Existing character networks studies seem to assume that the most effective way to relate network structure to narrative structure is to construct networks based on interactions between characters rather than the stable relationships underlying those relationships. Here I wish to make this explicit in order to argue that character interactions offer the most useful platform for exploring the kinds of narrative questions about women in film raised in Chapter 2. While we could conceivably construct a network representation of a film text based on the stable relations between characters (such as familial ties), these ties would tell us very little about how the narrative unfolds. This is because the stable ties exist in the story world of the film, but we are interested in the narrative, i.e. how that story is told. A relationship with a sister may be a part of a character's story, but how often do we see this relationship enacted? Through which characters and character relations does the story actually unfold, and who do we follow in the narrative? In order to answer questions such as these, it is necessary to construct a *character interaction network* wherein the relational events (Butts 2008) in the narrative form the basis of our network representation. The question for this section then can be more precisely stated as one of how to define character interactions for the

purposes of constructing edges in the character interaction network. In this section I will illustrate the process of evaluating a suitable approach using two films: *The Breakfast Club* (1985) and *Frozen* (2013). These films were chosen as illustrative examples for testing the value of the method under development, as these decisions were taken before a film corpus (discussed in the next section) was selected for analysis.

Under the framework set out by the Bechdel test, the unit of analysis is a bilateral conversation between two female characters. Thus, as a first step in determining how character networks can enable us to move beyond the Bechdel test, I aimed to extract a network wherein ties represent bilateral conversations between named speaking characters. For example, if three characters talk about the weather with each other for one minute, they would each be connected by a tie. This can be captured with an event list tracking a sequence of discrete conversations and their participants, and we can use the frequency with which two participants shared conversations together as an edge weight in the ensuing conversation network. This approach required a definition of what comprises a conversation in order to decide how to extract network ties. One potential avenue for exploring how to operationalise the conversation comes from the area of conversation analysis, which has provided definitions of conversations for network analysis purposes (see Gibson 2008; McFarland 2001). This area has developed theories and tools for analysing conversations in a relational framework, though the ideas underpinning conversation analysis are deeply rooted in the analysis of talk as a social phenomenon enacted by agentic social beings responding to one another in real situations (Boden and Zimmerman 1991; Sidnell 2010). In other words, they are designed to capture talk, and talk is unscripted by definition. Film dialogue, on the other hand, is spoken by characters whose decisions are controlled by production factors (e.g. scriptwriters, directors, genre conventions) rather than by their own social agency. As such, film dialogue must be understood as operating differently from talk as, although it may approximate real conversation, it has been “scripted, written and rewritten, censored, polished, rehearsed, and performed” (Kozloff 2000, 18). For this reason, the ethnomethodological epistemologies of conversation analysis are not well-suited to answering the kinds of questions we might have about the over-determined gender biases in film. As a result, I chose not to pursue such an approach here.

Instead, I operationalised conversations by following the more general approach set out by Elson et al. (2010) for extracting conversation networks from literature. Under this definition, we can identify a conversation when:

- “1. The characters are in the same place at the same time;
2. The characters take turns speaking; and
3. The characters are mutually aware of each other and each character’s speech is mutually intended for the other to hear” (Elson et al. 2010).

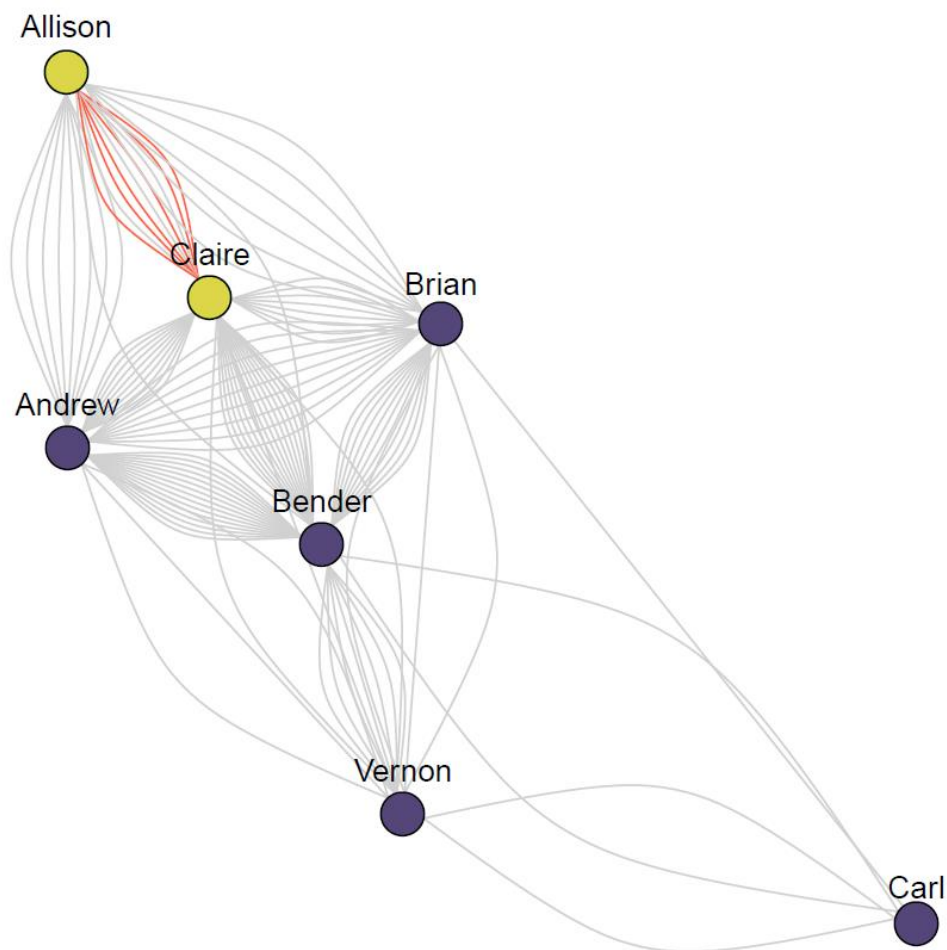
Added to these criteria was the proviso that vocal conversations conducted over telephone, the internet or some other telecommunications device would be accepted in place of the first criterion. According to this definition, conversations can be of different lengths as the continued back-and-forth of dialogue between characters is a continuation of the same conversation. Following Kapoor et al. (2015), a conversation was “assumed to have ended when (a) the physical setting or the scene changed, with no reference to the earlier conversation; or (b) the topic within the conversation changed. However, if the physical setting or scene changed, without a change in characters or topic, then it was assumed to represent continuity of a single conversation” (Kapoor et al. 2015, 7).

Figure 3.1 provides an example of a static conversation network for *The Breakfast Club*, represented as an undirected multigraph (a graph allowing for multiple edges between pairs of nodes). The conversations that enable the film to pass the Bechdel test criteria are shown in red. Visualising the conversation network in this way allows us to put the Bechdel test rating in its narrative context. *The Breakfast Club* passes the Bechdel test, the strongest indicator of “success” that test can offer. However, Figure 3.1 shows that conversations between female characters that are not about male characters are rare, and the vast majority of the narrative plays out through conversations involving or about male characters. While Claire (Molly Ringwald) is very central in the conversation network, it seems most of her interaction is contained in the triad of herself, Bender (Judd Nelson) and Andrew (Emilio Estevez). Though a second female character Allison (Ally Sheedy) is present in the network, she is more peripheral than Claire and is not involved in most of the conversations comprising the central (male-dominated) group.

Representing the narrative as a conversation network was an important first step in seeing what networks might capture that the Bechdel test cannot, and adapting the character

interaction network-based approach from literature to film. However, the conversation network method loses a lot of information about how dialogue is distributed by compressing the patterns of character interaction into flattened conversations. For example, one conversation could consist of a five-minute scene in which many characters discuss matters profoundly relevant to the plot and their own character development, while another conversation may simply consist of an exchange such as “See you next Saturday”, “You bet!”. By treating these as equal, we lose a lot of information about both the frequency and direction of character interactions.

Figure 3.1. Conversation network for *The Breakfast Club* (1985). Gold nodes represent females while navy nodes represent males. Ties marked in red indicate conversations which enable the film to pass the Bechdel test.



In order to move beyond the criteria of the Bechdel test and capture the complexity of how dialogue is distributed, it is necessary to instead extract a network based on individual lines of dialogue with their distinct sender and receiver. This allows for a much richer picture of the pattern, direction, frequency and sequence of character interactions over the course of

the narrative. In this approach, a line of dialogue represents a continuous stream of speech from one character to at least one other intended target. A line of dialogue was considered to have ended when either a) the scene or topic changed notably, b) another character began speaking, or c) the speaker paused to allow for a response. Not only does this directed approach significantly increase the amount of data gleaned from the film text (for *The Breakfast Club*, 43 discrete conversations were extracted for the conversation network, while 760 lines of dialogue were extracted for the dialogue network), it allows for the analysis of the interplay between sent and received ties and the distinction between speaking and being spoken to. Distinguishing between the sending and receiving patterns of dialogue has been shown to offer valuable analytical insight in other dialogic network approaches (Gibson 2008; McFarland 2001). For the directed dialogue network, only lines of dialogue spoken between named speaking characters are included in the data. An additional criterion was that lines of dialogue must be intelligible to an English-speaking audience. This means that a character grunting at another character, for example, would not comprise a line of dialogue; nor would a line of dialogue spoken in Russian, unless that line were subtitled for the viewer's comprehension. Both of these decisions were taken to try to reduce noise in the resulting character interaction network, and to ensure that only verbal interactions communicating some semantic value to the viewer were captured.

Figure 3.2. Directed dialogue network for *The Breakfast Club*. Node size proportional to total number of lines spoken. Node colour indicates gender (male = navy, female = gold). Edge shading proportional to frequency of interaction.

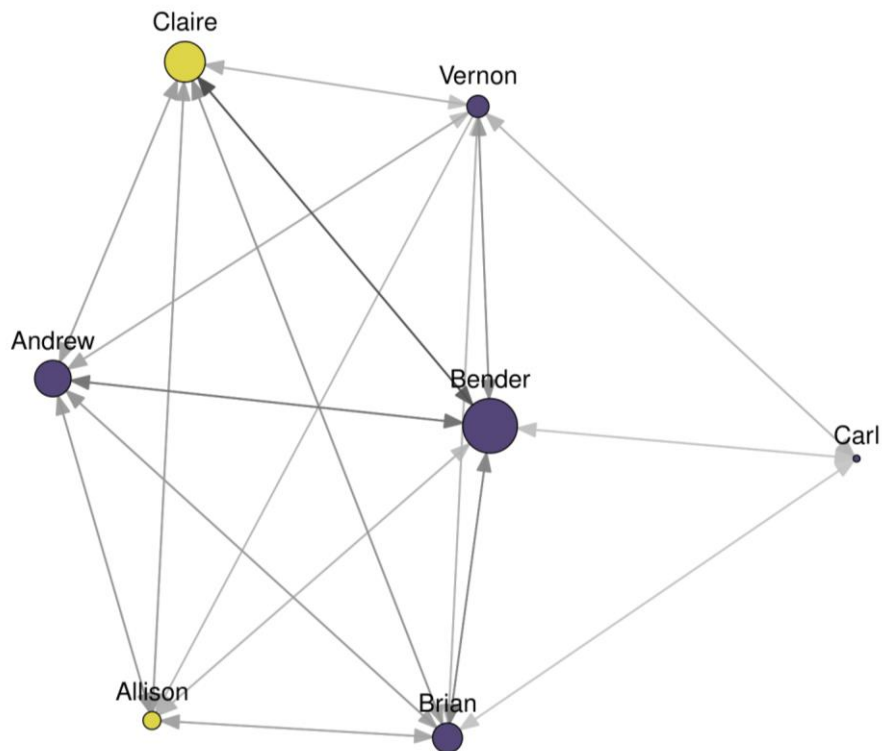
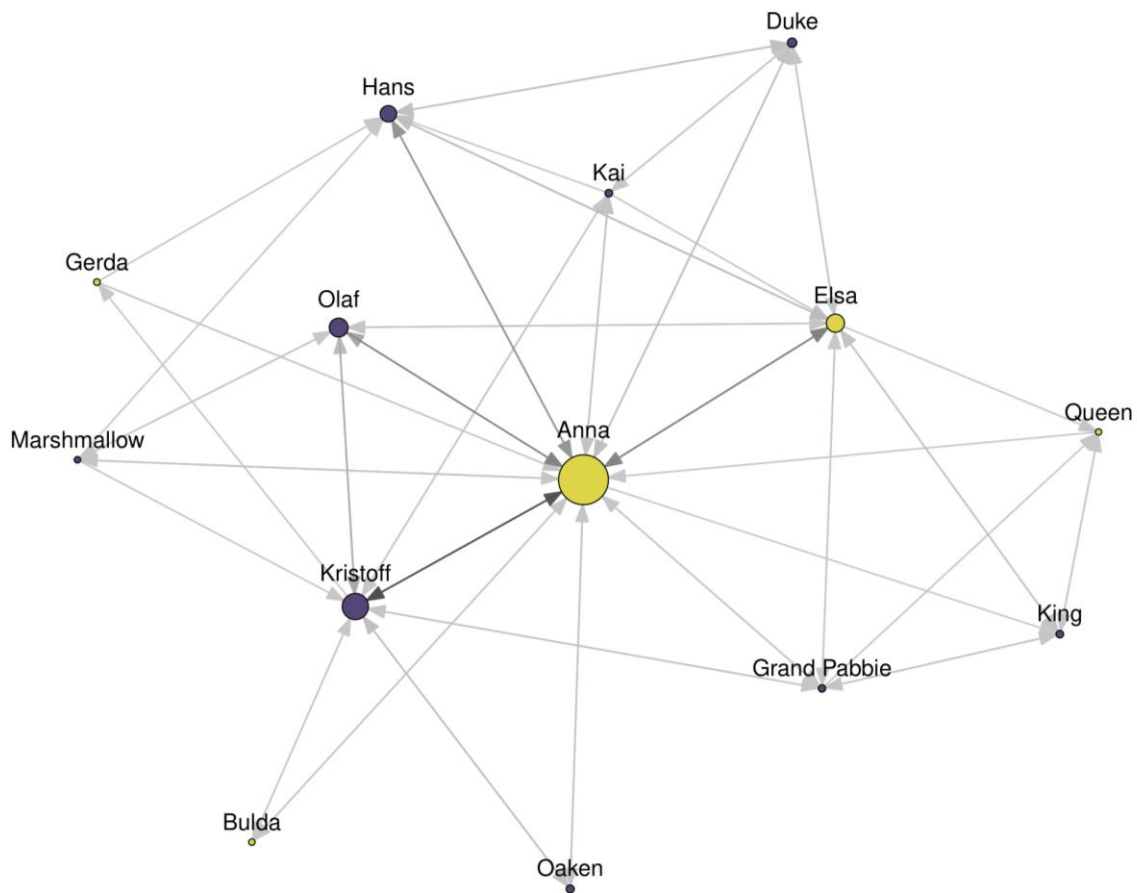


Figure 3.2 presents the directed dialogue network for *The Breakfast Club*. To aid clarity and simplicity of visualisation, edges in the graph are represented by a single arrow regardless of the number of interactions they represent, while darker lines indicate more interaction between characters. Arrowheads depict the direction of the dialogue, and the nodes have been sized proportionally to the number of lines of dialogue spoken by the characters in the course of the film. Figure 3.2 illustrates that *The Breakfast Club* example does not offer a particularly interesting platform for looking at dialogue through a network representation, as the film has a very unusual narrative which focuses on a small number of characters who spend the majority of the narrative in the same room as one another. As such, almost all of the characters speak to each other at some point in the film (with the exception of Carl, the janitor) and there is little structure in the network as a result. To see how well the character interactions are able to reveal the structure of a more conventional and complex narrative, a directed dialogue network was constructed for the 2013 Disney movie *Frozen*. This network is visualised in Figure 3.3, where again arrowheads depict the direction of the dialogue and darker edges indicate more interaction between a pair of characters.

Figure 3.3. Directed dialogue network for Disney's *Frozen* (2013). Node size proportional to total number of lines spoken. Node colour indicates gender (male = navy, female = gold). Edge shading proportional to frequency of interaction.



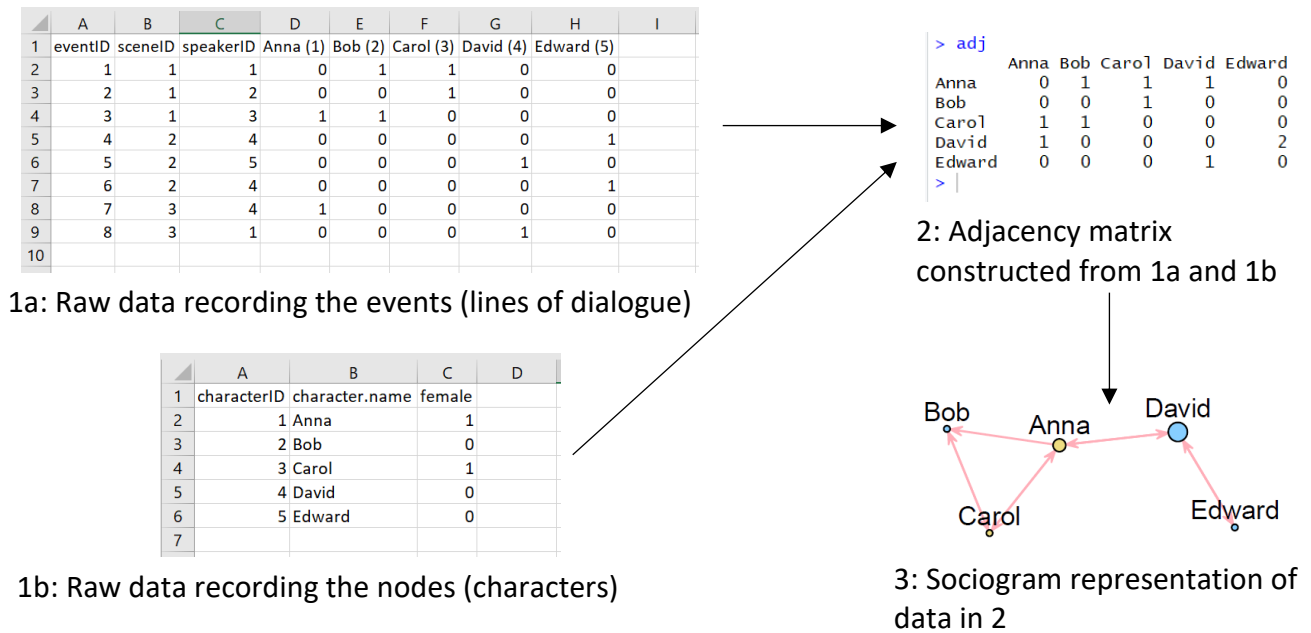
In Figure 3.3, we can see the emergence of an interesting network structure where characters are clustered into pockets of frequent scene-sharing, with Anna's presence common to all groups. The characters in the top part of the graph are those who remain in the castle of Arendelle throughout the narrative, while the characters in the centre-left part of the graph comprise the adventuring party who leave the castle and those they encounter on their journey. We can also see from Figure 3.3 how the peripheral characters tend to engage with the narrative only insofar as they engage with central characters, rarely interacting with each other. Thus, the network structure in the dialogue network seems to correspond to the narrative structure of the character system, providing a platform on which discussion of character positions might be used to explore gender dynamics in the data. As well as positional readings of the network graph, we can also draw on the underlying dialogue data constituting the network to note, for example, that although only 5 of the 14 named speaking characters (35.7%) are female, 51% of the 634 lines of dialogue in

the film are spoken by female characters, and female characters comprise 54.8% of the recipients of dialogue in the film. Moreover, we can use this dialogue network representation to evaluate opportunities for collective empowerment and female homosociality in the narrative. For example, although 120 of the 634 lines in the film (18.9%) are spoken by a female character to at least one other female character, we can see from Figure 3.3 that these are largely constrained to the dyad of Anna and Elsa due to the marginality of the other female characters who speak very few lines. Together, these kinds of readings provide a promising platform for evaluating the relational positions of female characters and the marginalisation of the female voice in a given film.

Data collection process

Throughout this thesis, the data were collected according to the directed dialogue method arrived at in the previous section. Here I offer a brief documentation of the practical process of using this method to generate dialogue networks from films, such as the dialogue networks for *The Breakfast Club* and *Frozen* presented in the previous section. Data collection involved recording data for a given film by watching the video file of the film and recording each line of dialogue in a spreadsheet. Each row of the spreadsheet corresponds to a line of dialogue, with columns indicating the index number for the line (eventID), the index number for the scene (sceneID), the ID number of the speaking character (speakerID), and a recipient column corresponding to each character which is populated by a 1 if the character was being spoken to for a given line and a 0 otherwise. A separate worksheet was created recording character-level variables including the characters' names and gender. Together these provide an event list and a node list, which form the raw materials from which the character interaction network can be constructed. An example of this data format for the movie *Frozen* is provided in Appendix A, along with a note on reproducibility and accessing the data and code used in the ensuing analyses.

Figure 3.4. Diagram depicting an example of the process of constructing a social network diagram from raw dialogue data.



The raw dialogue data can be represented in a number of ways, including as an adjacency matrix indicating the number of times each character spoke to each other character (see Step 2 in Figure 3.4). This adjacency matrix can then be used, for example, to represent the film as a sociogram (see Step 3 in Figure 3.4). Chapter 5 discusses the merits of this kind of static representation of the narrative in depth, but at this stage the sociogram serves as an illustrative proof of concept for the approach. Once the raw data is read into *R*, the data is checked to make sure that there are no easily identifiable data entry errors. This consists of three stages: (1) checking the diagonal of the adjacency matrix to ensure that no character has a self-tie (speaking to one's self is not considered dialogue under the coding scheme used in this thesis), (2) checking the event list for rows where the recipient of the line of dialogue was not properly inputted during data collection (all rows should only contain a 0 or a 1, and should have at least one recipient), and (3) consulting the sociogram to manually identify any ties which should not be present (or ties which should be present but are not). The next section explains the choice of films which were coded using this data collection method.

Data

Blockbuster women

With the data collection method outlined, this section now explains the rationale behind which films were selected for analysis in this research. The films analysed in this thesis fall into the category of what can be considered “blockbuster” films (details on the specific films are offered in the following section). I am deploying this term not to refer to the blockbuster as a particular genre of film per se, but rather to refer to a broader category describing big-budget feature films aimed at a mass market (Buckland 1998). While this definition allows for the fact that blockbuster cinema is made up of multiple overlapping genres, the discussion in Chapter 2 demonstrated that genre conventions are an important consideration when discussing the range of representations available to women in popular cinema. With this in mind, it should be noted that the particular blockbusters I look at in this thesis most closely correspond to the action, adventure and science-fiction genres, each of which was found to be negatively associated with Bechdel test success (see Table 2.2).

There are several reasons why focusing on this type of film is a useful choice. First of all, blockbusters are immensely popular and seen by enormous numbers of people around the world. From a sociological perspective, our interest in studying cultural texts is always at least partly motivated by an assumption that media representations have an effect on how people form their identities and are positioned within cultural discourses and narratives. Focusing on blockbusters ensures that we are always talking about films that are relevant to such discussions, as a large audience (made up of adults as well as children and teenagers) is common to these films. Secondly, it allows us to directly compare the results found here to the kinds of figures and benchmarks generated by existing content analyses (as reviewed in Chapter 2) whose corpora of films are typically drawn from annual lists of top-grossing films.

As well as these reasons, focusing the analysis on how gender plays out in blockbuster narratives allows us to engage with some of the most interesting and productive scholarship relating to the changing roles of female characters in mainstream Hollywood cinema. As discussed in the previous chapter, Laura Mulvey’s male gaze theory made central to feminist film studies the influential idea that women in cinema are rendered primarily passive and to-be-looked-at, while men act and advance the narrative (Mulvey 1975). From this perspective, the figure of the active woman poses something of a problem as it does not fit

easily within Mulvey's binary. As such, there has been a lot of scholarly attention devoted to decoding and theorising changing images of active women in Hollywood cinema, with much of this focusing on representations of women in action-oriented cinema, which has come to dominate year-end top-grossing lists in the twenty-first century (Purse 2011). There are three key reasons why this scholarship provides a useful platform for the kind of analysis proposed in this thesis: (1) the literature is marked by ambivalence, and previous debates have not responded to recent developments in the representation of female characters in blockbuster cinema; (2) the literature has overwhelmingly focused on the level of individual characterisation when discussing active women in cinema, and we know little about how these characters and their voices are positioned relationally within narratives; and (3) the action-oriented narratives of these films provide a useful opportunity to explore the particular kinds of empowerment and independence on offer in mainstream cinema. I outline some of the key ideas from this literature in this section in order to flesh out these claims.

To introduce the aforementioned ambivalence towards the role of contemporary active female characters, it is useful to begin by outlining a brief history of how such characters have been theorised in the women in film scholarship. Earlier scholarship on active women in Hollywood tended to focus on how active female characters were largely absent except in certain genres such as the film noir wherein they existed as *femmes fatales* (Haskell 1987). However, scholarship focusing on active women in the post-classical Hollywood era crystallised around the roles of women in increasingly action and spectacle-oriented blockbuster cinema. As action cinema emerged as a genre, when women featured in these films they initially tended to do so as sidekicks or romantic interests for the central male hero; in this role, female characters were often "rendered marginal by the narrative of the film, literally sacrificed" (Tasker 1993, 27). In films of this era, female characters were seen to act primarily as a "point of differentiation" to emphasise the masculinity of the male hero (Tasker 1993, 28).

However, in the late eighties and early nineties, a shift could be seen wherein more active and central female characters could be found in blockbuster films, such as Lt. Ripley in *Aliens* (1986), the eponymous *Thelma and Louise* (1991) and Sarah Connor in *Terminator 2: Judgement Day* (1991) (Tasker 1993). Not only were these characters present and central

within the narratives as active heroes in their own right, they were often aggressive, independent and physically capable, characteristics that had been mostly exclusive to male characters in mainstream cinema. As well as taking on masculine personality traits, characters such as Ripley and Sarah Connor were also often defined by their pronounced musculatures. Yvonne Tasker argued that this complex transgression of typical gender tropes in action cinema belongs to the phenomenon of “musculinity”, wherein the physical body is rendered as the primary site of struggle for the action hero, for both male and female heroes. This term came to characterise the ensuing rise of films centring on physically aggressive and violent female action heroes, such as *Tank Girl* (1995), *The Long Kiss Goodnight* (1996) and *G. I. Jane* (1997).

Scholars working within binaristic psychoanalytic frameworks such as the Mulveyan active/passive paradigm tended to frame these characters as somehow not really female, instead understanding their musculature and embodiment of masculine qualities as a kind of “figurative maleness” (e.g. Clover 1992). However, critics noted how discussing active female heroes from within binaristic frameworks limits the ability of these discussions to appreciate the profound ambiguities of the characters, or what is new and interesting about the particular range of meanings about gender made available through such characters (Brown 2004; Hills 1999; Schubart 2007). By trying to understand such characters using an either/or logic in which femininity is always rendered passive and acted upon, these perspectives do not allow for any space from which an active female can qualify as a hero; as such, they deny the complex embodiment of both feminine and masculine qualities accessed by the active female characters in these films. As Elizabeth Hills notes with regard to Lt. Ripley in the *Alien* film series, an attention to the ambiguities and contradictions of such gender performances is needed in order to understand how the female active hero “is a complex and transgressive both/and figure rather than the oppositional either/or figure of traditional gender codes” (Hills 1999, 45).

These debates were complicated when the terrain shifted again in the early 2000s, as images of female action heroes became less concerned with musculinity and physical aggression and were much more frequently characterised by highly eroticised and feminised representations of the active female character’s body. Examples of films in this mould include *Lara Croft: Tomb Raider* (2001) and its sequel *Lara Croft: Tomb Raider – The Cradle*

of Life (2003) starring Angelina Jolie, *Charlie's Angels* (2000) and its sequel *Charlie's Angels: Full Throttle* (2003), and *Mr. & Mrs. Smith* (2005). Although their presentation for erotic display is much more explicit, the female protagonists in these films are often no less active than their hard-bodied predecessors in their role as the "figure in the landscape" advancing the narrative (O'Day 2004, 203). As such, film scholars have noted how these female heroes have a "dual status as both active subjects and sexualised objects" (Purse 2011, 81) which has been met with ambivalent responses. Marc O'Day coined the term "action babe cinema" to refer to this cinematic space, wherein the complex gender performances of active and sexualised female characters in films with broad market appeal produce multiple ambivalent readings (O'Day 2004, 205).

Overall, these debates over the complexities of images of active female characters have produced an ambivalent space in which we can find excited claims that the very notion of appropriate gender roles is rejected through the characterisation of action heroines, alongside profound concerns over the apparent need to compensate for the activity of the female hero by so often "emphasising her sexuality, her availability within traditional feminine terms" (Tasker 1993, 19). Debates have continued over whether it is more productive to see female heroes as existing outside of Mulvey's active/passive gender binary, or simply straddling both sides of it. However, while the uncertainties and inconsistencies which characterise ambivalence tend to lead to it being seen as something to avoid, Sarah Banet-Weiser highlights how such doubts, negotiations and multiple readings also provide fertile ground for "the generative potential of ambivalence" (2012, 221). The methodological approach developed in this chapter so far has the potential to add to the debates here by identifying gendered patterns in the ways in which characters move through the narrative in action-oriented blockbuster films. By observing these patterns of interactions, we can initiate a "productive interaction with ambivalence" (Banet-Weiser 2012, 216) by aiming to explore what, if any, differences emerge in the narrative positionings of male and female characters in contemporary blockbusters.

Such an exploration is made all the more timely due to the sluggishness of academic scholarship to respond to the emergence of a number of female blockbuster heroes in recent years who seem to resist the earlier range of terms for understanding active female characters reviewed in this section. This new kind of hero is embodied by the character

Katniss Everdeen (Jennifer Lawrence), the protagonist of *The Hunger Games* film series (2012-2016) whose depiction has received much critical attention (e.g. Dolan 2013; Kirby 2015; Odumusi 2016; Scott and Dargis 2012). The films, adapted from the book series of the same name by Suzanne Collins, take place in a dystopian future version of North America called Panem, wherein a wealthy and technologically superior city called the Capitol is surrounded by twelve districts whose residents it oppressively controls and forces into labouring to produce goods and resources for the Capitol citizens. Throughout the series, Katniss evolves from a stoic young hunter whose primary concern is to provide food and income for her family, to the leader of a resistance movement to bring down the Capitol and end the oppression against the districts. Katniss has drawn attention from critics and scholars, as her characterisation seems to render earlier ideas about the narrative activity of female characters – from Mulvey’s binary to masculinity to the action babe – entirely insufficient for capturing her role. Katniss is skilled and capable, but not physically aggressive; she is beautiful, but is seldom sexualised and dresses for survival and practicality rather than for erotic display. Even when Katniss is presented as a spectacle for the diegetic audience in the Capitol, playing on the central themes of panopticism and spectatorship, we are always asked to identify with Katniss and her discomfort with the presentation rather than with the control of the gaze.

Other characters have followed Katniss, including Rey (Daisy Ridley) from episodes VII (2015) and VIII (2017) of the *Star Wars* saga, Jyn Erso (Felicity Jones) from *Star Wars* spin-off *Rogue One* (2016), Wonder Woman (Gal Gadot) from the 2017 film of the same name, Lara Croft (Alicia Vikander) in the rebooted *Tomb Raider* (2018), and most recently Carol Danvers (Brie Larson) in *Captain Marvel* (2019). Like their predecessors of the eighties, nineties and early 2000s, these characters all demonstrate the inadequacy of a simple active/passive binary for understanding the role of the active female character in mainstream cinema. Unlike previous iterations of the female action hero, however, it seems that these recent characters need to be neither masculinised nor sexualised in order to be heroic. As such, the theories which have been used to understand the roles and limits of active female characters in Hollywood narratives no longer offer any clear sense of what these characters represent. How are we to make sense of these characters given that the existing theories of gendered roles in action-oriented cinema do not seem to be easily adaptable to this new wave of heroes? What, if any, are the containment strategies (Purse 2011) acting on the

narrative activity of these characters? Using character interaction networks to explore the vocal and relational (dis)empowerment of female characters in blockbusters allows us a platform to answer this question.

A final reason this type of film provides a useful platform for exploring the questions set out so far in this thesis using character interaction networks is that it allows us to move beyond individualistic notions of concepts such as “empowerment” and “independence” when thinking about representation in film. This is particularly valuable when applied to the scholarly approaches to studying the changing roles of female characters in blockbuster films reviewed in this section, as they each focus on the active female character at the level of individual characterisation. The focus on what have variously been referred to as “action babes”, “action heroines”, “action chicks”, “warrior women”, and so on, has often turned discussion of the role of women in blockbuster cinema into discussion of female action heroes. This discussion individualises the female characters through abstraction and extraction from their relative position within the narrative character system, leaving little room for discussion of the relational dimensions of how these narratives are structured. We saw in Chapter 2 that ostensibly empowered and independent female characters can be narratively undermined in ways which become clearer when these characters are considered within the context of “the larger structuring of the narrative and ... the placement of the woman within that narrative” (Kaplan 1983, 2). As such, we have reasons to be sceptical of the pervasive notion that we might equate the progressive representation of women in film with the presence of the “strong female character”. How are such characters positioned within blockbuster narratives, and how do they relate to the characters around them? Are there relational dimensions constraining the empowerment and independence on offer to women in these narratives? The methods developed in this chapter provide us with a set of tools for exploring precisely these questions. The next section explains which films were selected for analysis to answer such questions.

Selection of films for coding

Table 1 lists the films that were coded over the course of the thesis according to the methods outlined in the previous section, along with some descriptive statistics. This corpus was not defined and pre-determined in the early stages of the research, with all data being collected before moving on to the analysis stage. Instead, the corpus evolved organically as

the research developed, new films were released, and the kinds of questions the network-based approach was able to illuminate became clearer. In this section, I will describe how this evolution led to the set of films listed in Table 3.1.

Table 3.1. Films from which character interaction network data was collected for the research.

Title	Year	Number of named speaking characters	Percentage of named speaking characters that are female	Total number of lines	Percentage of lines spoken by women	Percentage of recipients of dialogue that are women
<i>Iron Man</i>	2008	18	16.67	820	18.29	20.27
<i>The Incredible Hulk</i>	2008	11	27.27	305	31.48	24.68
<i>Iron Man 2</i>	2010	19	21.05	906	23.73	24.89
<i>Thor</i>	2011	19	21.05	581	27.37	25.94
<i>Captain America: The First Avenger</i>	2011	23	13.04	548	16.58	14.55
<i>The Avengers</i>	2012	16	18.75	836	17.22	18.89
<i>Iron Man 3</i>	2013	18	22.22	842	17.1	20.12
<i>Thor: The Dark World</i>	2013	21	33.33	586	35.32	35.7
<i>Captain America: The Winter Soldier</i>	2014	24	25	672	22.77	23.5
<i>Guardians of the Galaxy</i>	2014	23	26.09	659	20.79	18.32
<i>Avengers: Age of Ultron</i>	2015	24	33.33	927	19.74	21.57
<i>Ant-Man</i>	2015	17	23.53	813	17.1	15.42
<i>Captain America: Civil War</i>	2016	24	29.17	963	17.24	20.68
<i>Doctor Strange</i>	2016	12	16.67	623	25.52	22.59
<i>Guardians of the Galaxy Vol. 2</i>	2017	19	31.58	850	24	23.88
<i>Spider-Man: Homecoming</i>	2017	34	35.29	1,233	19.63	20.55
<i>Thor: Ragnarok</i>	2017	16	18.75	816	16.54	15.84
<i>Black Panther</i>	2018	17	41.18	645	38.91	39.41
<i>Wonder Woman</i>	2017	20	55	815	43.07	49.45
<i>The Hunger Games</i>	2012	21	42.86	588	45.41	50.74
<i>The Hunger Games: Catching Fire</i>	2013	21	33.33	744	44.89	47.57
<i>The Hunger Games: Mockingjay - Part 1</i>	2014	21	38.1	443	49.44	53.94
<i>The Hunger Games: Mockingjay - Part 2</i>	2015	24	54.17	490	52.65	51.1
<i>Lara Croft: Tomb Raider</i>	2001	9	11.11	322	37.89	48.05

<i>Lara Croft: Tomb Raider - The Cradle of Life</i>	2003	16	12.5	514	36.58	44.44
<i>Tomb Raider</i>	2018	17	35.29	443	50.11	55.39
<i>Star Wars: The Force Awakens</i>	2015	31	22.58	688	28.05	26.53

Initially, the films of the Marvel Cinematic Universe (MCU) were selected for coding. One reason the MCU was used as a starting point is that these films collectively represent the highest grossing franchise in the history of Hollywood cinema (Box Office Mojo 2019). Moreover, the films provide an interesting opportunity for examining character interactions from a network perspective given that the various films and characters cross over into a large interconnected shared universe. Each of the twelve MCU films available on home video at the beginning of the research (from 2008's *Iron Man* to 2015's *Ant-Man*) were initially coded, with a further six films released during the course of the research being coded as they were released (up to and including 2018's *Black Panther*). These films provide an interesting platform for considering gender dynamics, as none of the 18 films is female-led, though almost all of the films feature female characters either as superheroes in their own right, such as the characters Natasha Romanoff/Black Widow (Scarlett Johansson) and Wanda Maximoff/Scarlet Witch (Elizabeth Olsen), or as romantic interests and sidekick characters, such as Pepper Potts (Gwyneth Paltrow) and Jane Foster (Natalie Portman). Understanding how these characters are positioned in the narratives relative to the other characters would provide valuable insight into how gender operates in this kind of narrative.

In June 2017, during the first year of the research, Warner Bros. released *Wonder Woman* (based on the DC Comics character of the same name), the first female-led superhero film since 2005's *Elektra*. *Wonder Woman* was therefore coded following its home video release, as the film provided an obvious point of comparison for the MCU films, a comparison which offers a unique opportunity to put to the test the analytical value of the character networks approach for thinking about how gender operates in blockbuster cinema. While the comparison with the MCU films was useful for examining how *Wonder Woman* compared with male-led superhero films, it seemed important to also gain a sense of how the film compared with other female-led blockbusters. To this end, two female-fronted film series were selected for additional coding. The first was *The Hunger Games* film series, consisting

of four films released between 2012 and 2015. These films were identified in the literature on contemporary images of female action characters as a significant milestone in the evolution of the female action hero (as discussed above). As well as these films, all three films based on the *Tomb Raider* video game series were coded. The first two of these films, *Lara Croft: Tomb Raider* (2001) and *Lara Croft: Tomb Raider – The Cradle of Life* (2003), starring Angelina Jolie, are prime examples of the “action babe” trend identified in the previous section. However, the film series was rebooted in 2018 with the film *Tomb Raider*, starring Alicia Vikander. This allowed for the opportunity to explore how the narratives had changed over time, as well as provide another point of comparison and context for the *Wonder Woman* data. Finally, the 2015 film *Star Wars: The Force Awakens* was coded in order to explore the role of one of the film’s central protagonists Rey (Daisy Ridley), as this character offers another contemporary example of a female blockbuster hero.

Together, this process produced a corpus of 27 films, with a collective total of over 18,000 lines of dialogue distributed between more than 500 named speaking characters.

The usefulness of different kinds of ties

The previous sections developed a dialogue-based approach for analysing character interactions in film narratives. However, film character networks have the potential to provide insight into non-dialogic ties and interactions between characters. Besides looking at the gendered distribution of speaking roles, content analyses have explored a number of gendered stereotypes depicted in popular Hollywood cinema. For example, questions have been raised concerning how sexualisation, violence and workplace hierarchy are portrayed in gendered ways in popular film (e.g. Bleakley et al. 2012; Gilpatric 2010; King 2008; Lauzen 2017). Each of these stereotypes are found in the interactions and interpersonal dependencies between characters, with the status of women being defined through how they relate to those around them. How can a network-based approach illustrate the ways in which these extradiologic relational processes are gendered in film narratives?

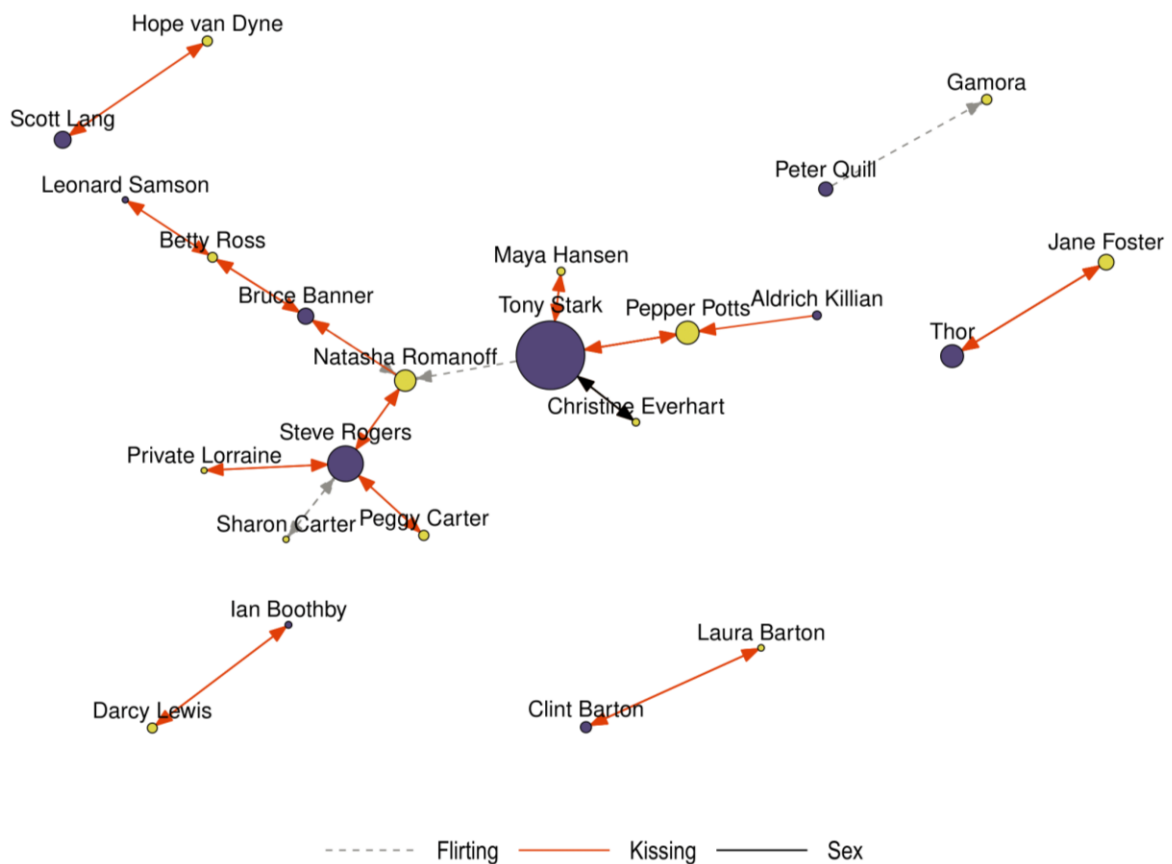
To explore this question, I offer an example in the form of sexual/romantic ties. As noted in Chapter 2, literature on representations of women in film often invokes the romantic dependency of female characters in film. Content analyses have attempted to provide data on this issue by recording the relative frequencies with which women are depicted in

romantic relationships, in sexual content, and the frequency with which they are referred to as attractive (e.g. Bleakley et al. 2012; King 2008; Neuendorf et al. 2010; Steinke 2005). To operationalise and illustrate how this issue can be explored using a network approach, I created a romance interaction network for the first 12 films in the Marvel Cinematic Universe (up to and including *Ant-Man*, as these were the films available for coding at the time of this analysis).

Romantic interactions between named characters were coded with three strengths: (1) flirting; (2) kissing; and (3) sex. Literature on flirting has defined flirting as a tactic used to attract the attention of a recipient and to reveal certain goals “e.g., sexual proceptivity, romantic relationship initiation, or increased relational intimacy” (Abrahams 1994, 283). To try and capture this, I defined a flirting tie as any interaction from one character to another in which they (a) allude to a possible relationship (romantic or sexual) between the two; (b) make conspicuous physical contact, such as touching the leg or hip; or (c) refer to the attractiveness or desirability of the recipient. Kissing was defined rather more straightforwardly, where shared kisses (i.e. on the lips) are defined as a pair of reciprocated directed ties, while kisses on the cheek and such are considered a single directed tie. As sex is rarely depicted directly in blockbuster cinema, I defined a sexual tie as any case where it was made explicitly clear that two characters’ romantic interactions had escalated to sex within the course of the narrative.

Figure 3.5 shows the distribution of romantic interactions in the character network of the first twelve films of the MCU. For clarity of visualisation, isolates (nodes with no ties to other nodes) have been removed from the network, leaving 23 nodes involved in some kind of romantic tie. Tie strength is indicated by the line type and colour of the edge. If more than one kind of tie is present for a dyad (two characters flirt with each other earlier in the movie and then kiss later in the movie) the strongest tie is plotted. Nodes have been sized proportional to the number of lines they speak across the 12 films combined, as a measure of relative character importance. It should be noted that each of the MCU films is rated PG-13, so ties depicting sexual activity are rare. In fact, only one such tie is found across these films: in *Iron Man*, we see a reporter named Christine Everhart (Leslie Bibb) getting dressed after a sexual encounter with Tony Stark (Robert Downey Jr.).

Figure 3.5. Romantic interaction ties in the first 12 films of the Marvel Cinematic Universe. Nodes coloured according to gender, and sized proportional to the number of lines spoken in total across the 12 films.



We can see from Figure 3.5 that male nodes tend to be larger than the females to which they are connected, usually with one central but subordinate female being connected as the main love interest for the male hero. This is particularly true for the characters that star as the central character of their respective films: Scott Lang with Hope Van Dyne (*Ant-Man*), Thor with Jane Foster (*Thor*, *Thor: The Dark World*), Steve Rogers with Peggy Carter (*Captain America: The First Avenger*), Bruce Banner with Betty Ross (*The Incredible Hulk*), and Tony Stark with Pepper Potts (*Iron Man 1–3*). All of these characters share romantic ties with a central female character with fewer lines than them, and in some cases also share ties with other even less prominent female characters. The exception to this pattern is Natasha Romanoff (Scarlett Johansson) who is tied to three male characters despite never appearing as the lead of her own film (and thus existing outside of the typical lead—love interest mode). Interestingly, the eight female characters with the most dialogue in the twelve MCU films are all present in the romance network. However, only five of the eight male

characters with the most dialogue are romantically involved, the other three characters being James Rhodes (Terrence Howard/Don Cheadle), Nick Fury (Samuel L. Jackson) and Loki (Tom Hiddleston). This suggests that there are more opportunities for male characters to be narratively important without the requirement of romantic involvement.

Another insight illustrated by Figure 3.5 is the heteronormativity of the romance. Unlike dialogue, the kinds of romantic ties configured here are dyadic in nature, and a tie usually (*always* in the Marvel data) consists of an interaction between a male and a female. This explains a certain problem regarding the gendered representation of romantic independence. From one perspective, women can be seen to be written as more romantically dependent given that, although only 38 of the 156 named speaking characters (24.4%) in the twelve MCU films analysed here are female, 13 of the 23 nodes (56.5%) in the romance network are female. This means that 34% of female characters are involved in some kind of romantic connection, compared with just 8% of male characters. However, it should be remembered that if every dyad is heterosexual, and there are fewer females than males, then it follows that women must be overrepresented in the romance network. In other words, the fact that a greater proportion of women are depicted in some kind of romantic relation is a logical consequence of two facts: (1) romance ties in film are usually between men and women (Smith et al. 2018); and (2) there are fewer women represented in films than males. Though a network model is not required to observe this fact, the graph in Figure 3.5 is helpful in illustrating it nonetheless.

At the level of a large interconnected narrative universe such as the MCU, it seems that a romantic interaction network can be a useful tool for analysis of gendered character structures. However, the Marvel Cinematic Universe is unique as an example of such a large interconnected cinematic crossover project, and on the level of individual films, the amount of romantic interactions is unlikely to be enough to generate meaningful network data. For example, Bruce Banner (Edward Norton/Mark Ruffalo) occupies an interesting position in the largest connected component of the network in Figure 3.5. However, if we were to generate a romance network only for the film *The Incredible Hulk*, we would simply see the triad of Leonard Samson—Betty Ross—Bruce Banner. A network-based approach would not be able to offer much here. There may, of course, be other kinds of films in which romance ties are more common, such as romantic comedies and dramas. However, whether these

films would generate many more romance ties outside of the central two or three characters is not guaranteed and more extensive research would be needed to explore this question.

Similar problems are likely to apply to other kinds of interaction which may be of interest to film scholars, such as violence ties between characters. In the majority of films, there is likely to be far too little violence to support a network-based approach. In more action-based genres, however, there will be significant difficulties involved in parsing the violence into definable sequences of individual interactions (see Roughan et al. 2019). Moreover, neither romance nor violence ties capture the overall unfolding of the narrative in the same way that dialogue does. For these reasons, I believe that these non-dialogic film networks are not likely to be able to offer a particularly useful platform for the kind of film-level analysis which can advance our understanding of the research problem outlined in Chapter 2. I therefore focus on networks consisting of dialogic interactions in the remainder of the thesis.

Summary

This chapter defined and outlined a data collection method for capturing the sequences of dialogue interactions between characters based on a number of considerations. First, there is an important distinction between two characters speaking in the same scene and direct interaction between those two characters. In order to capture the patterns of direct interaction between characters, a manual network extraction method is necessary. By focusing on directed dialogue interactions, we can capture not only the frequency with which characters speak, but also to whom those lines are spoken. Moreover, we can identify any gendered differences in patterns of sending ties (speaking) and receiving ties (being spoken to). Compared with other types of character interactions and tie definitions, such as bilateral conversations or romantic interactions, directed dialogue interactions offer a richer source of data on how a film's narrative unfolds through the character system. Due to concerns over the availability of reliable data, the video files are the optimal data source for extracting character interaction networks. Together, these arguments form the rationale for a data collection process which involves watching a given film and recording each line of dialogue between named speaking characters as a sequence of relational events with a distinct sender and receiver(s). This raw dialogue data can be used to construct network-

based representations of the film narrative based on the patterns of interaction between characters.

The tools developed in this chapter can be brought to bear on mainstream Hollywood films to explore how well the character network approach can reveal narrative patterns of marginalisation. In this thesis, the character interaction network method will be used to analyse a number of recent Hollywood blockbuster films which have been selected to provide a relevant corpus for exploring how women are positioned in mainstream narratives in light of ambivalent critical and scholarly responses to female characters in contemporary blockbuster cinema. In particular, the approach will allow us to compare benchmark figures concerning the proportion of speaking roles occupied by women in top-grossing films (see Chapter 2) with how dialogue is actually distributed in these films. Moreover, it will allow us to move beyond individualistic “strong female character” frameworks and consider the female characters in the context of their relations to others and their positioning within the larger narrative. As such, we can evaluate the kinds of empowerment and independence available to female characters within the character systems of blockbuster narratives. In these ways, there is much potential in a network-based approach to investigating the vocal and relational dimensions of how women are marginalised in popular film narratives using the methods developed in this chapter. In the next chapter I will put these tools into action by using the character interaction network method developed here as the basis for a comparative case study of female positionings in recent blockbuster narratives.

Chapter 4 – A character interaction network approach to analysing gendered positions in *Wonder Woman*

“Be careful in the world of men, Diana. They do not deserve you.”

Hippolyta, Queen of the Amazons, in *Wonder Woman*.

Introduction

This chapter will use the methods developed in Chapter 3 to launch a character interaction network-based analysis of the 2017 film *Wonder Woman*³. As a big-budget action film both directed by and starring a woman, *Wonder Woman* is unusual in the current Hollywood climate. The under-representation of women in Hollywood is well-documented, both in front of and especially behind the camera (Hunt et al. 2019; Lauzen 2019). As noted in Chapter 2, women have rarely accounted for more than 30% of speaking characters in top-grossing Hollywood films over the last decade, and have accounted for only 4.1% of directors (Smith et al. 2018). Patty Jenkins, the director of *Wonder Woman*, became only the second woman in history to direct a film with a budget over \$100 million, despite the fact that blockbusters have been regularly exceeding this expenditure for years. Hollywood’s gender disparity has recently come under more intense scrutiny than ever in light of the avalanche of allegations of sexual misconduct and abuse of power against men in Hollywood beginning in October 2017, which has sparked calls for more women in positions of power in the film industry. In this context, it is significant that *Wonder Woman* was a smash hit, ending 2017 as the third-highest grossing film of the year in the United States (Box Office Mojo 2019). The two films which earned more money (*Beauty and the Beast* and *Star Wars: The Last Jedi*) both also featured female characters prominently in their narratives. As studio executives in Hollywood begin to consider what the success of these ostensibly female-led films means for their movie development pipeline, it seems a productive moment to reflect on the model of female-led blockbuster cinema presented in *Wonder Woman*.

³ A version of this chapter was originally published as a standalone paper in August 2018. See Jones, Pete. 2018. “Diana in the World of Men: a character network approach to analysing gendered vocal representation in *Wonder Woman*.” *Feminist Media Studies*, DOI: 10.1080/14680777.2018.1510846.

Strong claims have been made in the critical reception about *Wonder Woman* which imply that the film offers something new and progressive in the development of the female action hero—reviewers have called *Wonder Woman* “a masterpiece of subversive feminism” (Williams 2017), “a thrillingly staged knockout blow for feminism” (Collin 2017), “[pretty much] the best that Hollywood can deliver” (Morgenstern 2017), and hailed its hero as “the dazzling embodiment of female empowerment” (Morgenstern 2017). By applying the method developed in this thesis, however, I present an analytic approach which illustrates that the gender politics of *Wonder Woman* is ambivalent, and that the ‘dazzling’ spectacle of the film masks an underlying character structure in which Diana (Gal Gadot) and her narrative are highly dependent on her male sidekick Steve Trevor (Chris Pine).

My analysis compares the gendered distribution of character interactions in *Wonder Woman* with two other relevant recent films: *Thor* (2011) and *The Hunger Games* (2012). Both offer revealing points of comparison: *Thor* shares generic similarities with *Wonder Woman*, as both are blockbuster comic book adaptations featuring demigod heroes based on classical mythology, while *The Hunger Games* provides an example of another hugely successful female-centred action film. The distribution of dialogue in *Wonder Woman* demonstrates the lack of opportunities for collective empowerment and illustrates the ways in which Diana is made to share her story with a love interest in a manner that is not seen with the main hero in either *Thor* or *The Hunger Games*. These comparative texts shed light on the gendered dynamics of *Wonder Woman* while also illustrating the salience of examining vocal representation empirically in contemporary Hollywood film. Ultimately, this chapter argues that a character network-driven consideration of the vocal and relational dimensions of how the characters are positioned within the film narratives calls into question the idea that *Wonder Woman* should be considered ‘female-led’. The chapter ends by exploring the implications of this argument using data from the full corpus of films gathered for this thesis. This exploration reflects on what the corpus data tells us about the role of women in contemporary blockbuster cinema in light of industry benchmark figures concerning the prevalence of female speaking characters.

A framework for considering gendered character positions in *Wonder Woman*

In this section, I will draw on the ideas already introduced in Chapter 2 to develop a concise framework to guide the comparative case study of *Wonder Woman*. This framework aims to capitalise on the potential of character interaction networks to illustrate the vocal and relational dimensions of the narrative marginalisation of female characters. By reiterating and streamlining key points from the discussion in Chapter 2, I establish in this section those claims and debates which I aim to explore and test using the approach developed in Chapter 3.

Vocal (dis)empowerment

Much research on women in film has been primarily focused on the visual representation of women and particularly the spectacular elements of action-oriented Hollywood cinema (e.g. King 2003; O'Day 2004; Purse 2011; Tasker 1993). However, the voice has been configured in film theory as an instrument of power, with the suppression of female voices being highlighted by film scholars as a tool of subordination and objectification in popular cinema which leads to narrative marginalisation (Haskell 1987; Kaplan 1983; Kozloff 2000). In particular, feminist film scholars have considered the connection between Hollywood's 'male gaze' and the silencing of women in film (Mulvey 1975). This silencing has been understood as one consequence of a dominant visual-narrative paradigm in which masculine control over the cinematic conventions of representation has meant that "women are ultimately refused a voice, a discourse, and their desire is subjected to male desire" (Kaplan 1983, 7). Scholars working in this tradition have identified and problematised how the telling of stories from a male point of view has denied women the "ego-defining dimension of speech" (Haskell 1987, 7).

However, Jennifer O'Meara has noted that the few studies to focus primarily on vocal representation and gender in film have been limited to films of the classical Hollywood era, and there is a lack of research into what she refers to as the "verbal and vocal (dis)empowerment" of women in contemporary film (O'Meara 2016, 2). Modifications of the kinds of screen portrayals for women in recent decades have made space for a substantial increase in images of active women in popular cinema. The central roles of these active women complicate earlier claims from feminist film studies that narrative cinema

simply denies women “a place from which to speak” (Kaplan 1983, 8). However, as a result of the lack of research on the subject, we know little about how the changing images of active female characters in recent decades have impacted the marginalisation of female voices in mainstream Hollywood narratives.

Where quantitative content analyses have attempted to investigate the question of gender and dialogue in film, they have focused on the proportion of speaking characters who are female in top-grossing films, finding with remarkable year-on-year consistency that this figure is around 30% (Lauzen 2019; Smith et al. 2018). However, we do not know from these figures whether females accounting for 30% of the speaking characters equates to 30% of the dialogue actually being spoken by females. Nor do we know to whom those lines are spoken. As such, we have little empirical evidence about how vocal (dis)empowerment might operate in popular cinema. The character interaction network approach developed in Chapter 3 can be used to illuminate such questions through the comparative analysis of *Wonder Woman* I present here.

Relational (dis)empowerment

Scholars looking at the spread of post-feminist and backlash discourses in Hollywood have noted how ostensibly strong and independent film heroines are often undermined by sexist tropes (Faludi 1992; Holmlund 2005; Press and Liebes 2016). Post-feminist media texts often invoke feminist sentiments, whilst simultaneously depoliticising feminist struggles and promoting an individualist model of female agency which undermines collective action (Gill 2007; McRobbie 2004). Thus, while ‘Hollywood feminism’ has increasingly granted female characters central roles and professional success in narratives, they are often isolated from other women in the narrative or pitted against them outright as rivals in a representational process which depoliticises women’s struggles, reducing them to personal, individualised problems (Faludi 1992; Press and Liebes 2016, 270). Moreover, the independence of active female characters is often contained within the limited terms of heterosexual relationships rather than through bonds with other women (Boyle and Berridge 2012; Charbonneau and Winer 1981).

Sutherland and Feltey (2016) offer a framework which establishes an explicitly relational perspective on women’s on-screen empowerment. This framework utilises Amy Allen’s tripartite model of power in order to distinguish modes of empowerment in film narratives.

Allen's model conceptualises three types of power: *power-over*, the domination of others; *power-to*, individual empowerment and accomplishment within unequal systems; and *power-with*, which involves working together to resist and subvert these unequal and oppressive systems (Sutherland and Feltey 2016). Sutherland and Feltey look for evidence of the operation of power-with in their analysis of what constitutes a 'feminist film', finding that "stories of women and power are predominantly 'power-to'" and that in Hollywood "empowerment is packaged as individualism," producing a model of the post-feminist heroine wherein "challenges are resolved through individual perseverance, strength, and exceptionalism" (2016, 11). Thus, power-with is absent in narratives where ostensibly strong women are isolated from other women or pitted against one another. These perspectives ask us to think more critically about the type of empowerment embodied by the "strong female character", as the narrative positions occupied by such characters can often serve to undermine and contain the feminist potential of those characters.

Summary

The character interaction network approach defined in Chapter 3 provides an empirical platform for exploring the vocal and relational dimensions of female characters' narrative marginalisation in popular cinema. This approach captures the gendered distribution of dialogue by recording the sender and receiver of each line of dialogue. As such, it allows us to answer questions about how much female characters speak, how much they are spoken to, and with whom they interact. Moreover, it can reveal patterns of character interaction which can illustrate whether the empowerment of female protagonists is enacted through a "power-with" or individualistic mode of empowerment within the narrative. Together, this enables an exploration of the vocal and relational mechanisms by which female characters come to occupy the narrative positions they do. It is not my intention to suggest that dialogue and the relational perspective I have outlined here are the most important aspects of gender bias in film. Nor do I wish to suggest that these elements alone are sufficient for understanding narrative marginalisation – other nonverbal elements and visual codes also work to complicate and contain the narrative positions occupied by female characters. Rather, I wish to establish that looking at character interaction networks has the potential to add to and refine our understanding of how female characters are positioned within popular Hollywood narratives. In this chapter I therefore use the character interaction network data

as the basis for launching an analysis of gender in the films which draws on and compliments existing approaches to discussing gendered representations.

Wonder Woman

Wonder Woman opens with Diana growing up as a child on the idyllic island of Themyscira, a lush paradise populated only by Amazonian warrior women and protected from the outside world by a magical veil. Diana's mother Hippolyta tells her stories of how she sculpted Diana from clay and asked Zeus to give her life, and how Zeus created the Amazons to return goodness to the heart of Man after Zeus' belligerent son Ares poisoned the well by influencing men towards violence and war. Diana dreams of becoming a warrior, and we see her training as she grows up until, fifteen minutes into the film, a German plane crashes through the veil surrounding Themyscira and into the sea. An adult Diana dives in and rescues pilot Steve Trevor, who explains that he is a spy for the Allies in 'the war to end all wars', a war in which innocent people are being slaughtered. Diana decides to leave Themyscira to find the war, believing that there she will find Ares and kill him, freeing good men from his wicked influence. Steve and Diana sail to London, where they meet with the British war cabinet whose proposed armistice treaty is ignorant of a chemical weapon being developed by the German General Ludendorff and his ally, a disfigured chemist named Isabel Maru. Disgusted by the politicians' lack of action in the face of such danger, Diana vows to enter the battlefield to face Ares herself and free Man from his influence. Steve agrees to accompany her along with three of his comrades and, on the battlefield, Diana reveals her superhuman strength and agility, most notably during a powerful scene in which she fights her way across No Man's Land after beholding the indiscriminate horrors of the war from the trenches. Through her pursuit of Ares, Diana learns the truth that she was not sculpted from clay but is in fact the daughter of Hippolyta and Zeus, whilst having to reckon with the growing realisation that no one man, or demigod, is responsible for the wicked ways of Man.

Critical reception of the film has been broadly positive. As of July 2019, the review aggregation website Rotten Tomatoes shows an average review score of 7.6/10 (from 430 reviews), with 93% of these reviews being characterised as 'fresh' (positive). As mentioned above, many of these reviews contain strong claims about the gender politics of *Wonder Woman*. There are several aspects of the film that might help to explain these claims. For

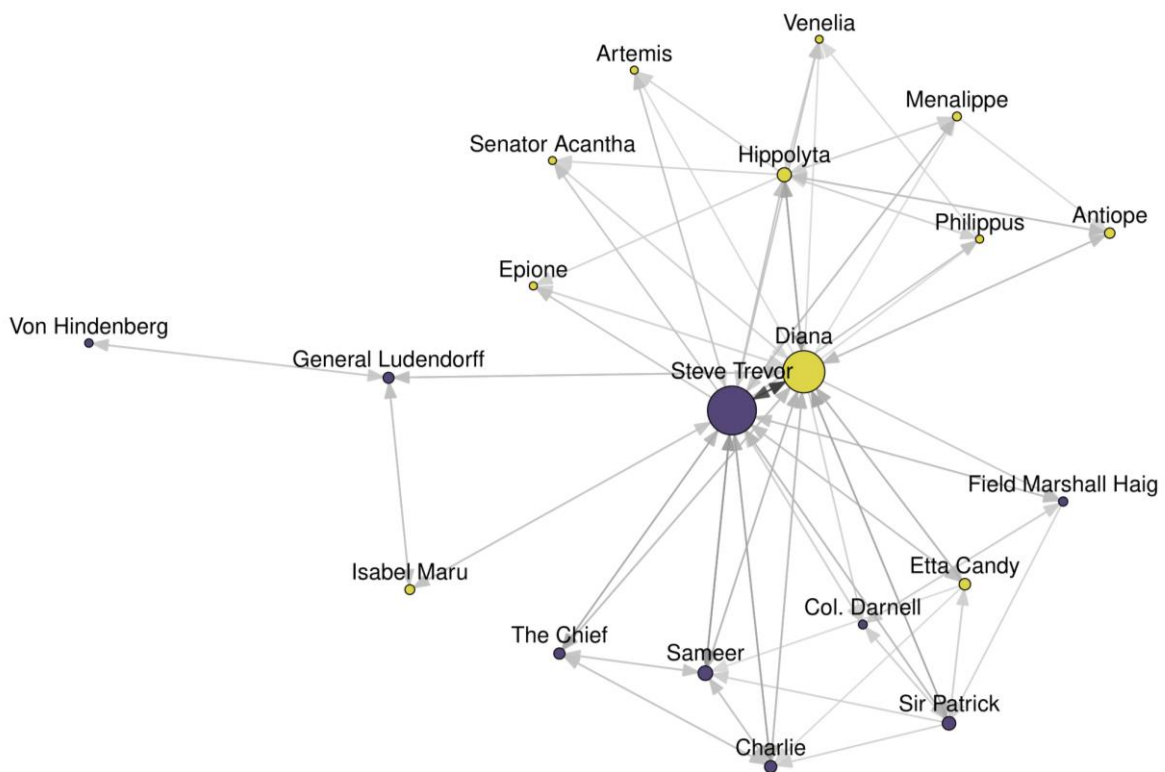
one, Diana's dislocation from her matriarchal homeland leads her at several points in the plot to forthrightly express her incredulity at the sex roles she is confronted with; one notable example of this is when Steve's secretary Etta Candy (Lucy Davis) explains the day-to-day responsibilities of her job to Diana – basically being on hand to do whatever Steve tells her to do – to which Diana responds, “where I'm from that's called slavery”. Diana is also presented as sexually autonomous, telling Steve on their journey from Themyscira that she has learned that although men are essential for procreation, they are not necessary for pleasure. Critics have thus generally presented *Wonder Woman* as something topical and important in the development of the female action hero. For example, *New York Times* reviewer Frank Bruni refers to the film as an “important step toward more big-screen portrayals of female characters as strong, independent leaders” (Bruni 2017). I will return to these claims about strong, independent leadership later in this chapter.

Bruni's remark also points to the notion that an increase in the number of blockbusters starring women in central roles is conditional on the success of films like *Wonder Woman*. This attitude is indicative of a long-held double-standard in Hollywood which sees female-driven projects fall under immense pressure to succeed if such projects are to be considered viable in the future. This double-standard is perhaps most evident among superhero films, where women have been given very few opportunities to lead on-screen, and no opportunities to direct (prior to *Wonder Woman*). One of the more revealing exchanges uncovered in a 2014 Sony e-mail leak came from a message sent from Marvel Entertainment CEO Ike Perlmutter to a leading Sony executive in which he listed “just a few examples” of female-led superhero and comic book movies which had been unsuccessful, presumably to justify the lack of female-led projects in development at the time (Dockterman 2015). It is worth noting that male-driven superhero flops such as *Fantastic Four* (2015), *Green Lantern* (2011) or *Daredevil* (2003) do not spark the same concerns over the viability of male-led projects. In this context, it is all the more significant that *Wonder Woman* is the financial and critical success that it has been – by November 2017 it had become the highest-grossing superhero origin story of all time globally, pulling in over \$820 million to edge past 2002's Sam Raimi-directed *Spider-Man* (Box Office Mojo 2019) – as this success has knock-on effects for how studios think about the viability of female-led blockbusters. Warner Bros. Pictures' Chairman Toby Emmerich illustrated this when he characterised the mood of studio executives as “What the heck happened with *Wonder Woman*, and how do we get in

on that action?” (Lang 2017). This makes it all the more important to examine how women are positioned in the narrative of *Wonder Woman*, as this film has played a significant role in changing perceptions over how female-led blockbusters can find success.

Figure 4.1 shows the directed dialogue network for *Wonder Woman*. To aid visual clarity, all ties sent from one character to another are represented by a single arrow, with edge shading indicating the frequency of interaction between characters. Ties are directed in that they are sent from one character to another character and thus may or may not be reciprocated. Arrowheads in the diagrams indicate the direction of the ties. The *Wonder Woman* diagram reveals interesting patterns in the network. For one, it shows the splitting of the dialogue network into three clusters or ‘camps’ revolving around the two central characters: the Amazons, the Allies, and the German forces. The Allies and the German forces clearly exist in the World of Men (where the only women are a secretary and a disfigured chemist, both working in service of more prominent male characters), while the Amazons (who are not seen on screen at all in the final 102 minutes of the film) live entirely outside of this world. Characters in these camps only interact with others from within their camp and the two central characters, while Steve and Diana interact with characters from each camp. This implies two tiers of characters: those whose importance is defined within a certain camp or setting, and those whose importance is defined across multiple settings over the course of the film.

Figure 4.1. Character interaction network for *Wonder Woman*. Blue nodes represent males, gold nodes represent females. Nodes sized proportionally to number of lines spoken in total. Edge shading indicates frequency of interaction.



The most striking observation is the way in which the two central characters occupy almost the exact same space in the network. There is little doubt from looking at the dialogue network that Diana is very central in the narrative of *Wonder Woman*. However, this centrality is shared with Steve Trevor to the extent that the graph plots the two characters in almost exactly the same position based on the distribution of dialogue in the film. One common way of measuring the centrality of individuals in a network is to tally the number of ties a node sends and receives (Freeman 1979). This number is called a node's "degree", and for directed graphs it can be divided into a node's out-degree (the number of nodes to which a node sends a tie) and in-degree (the number of other nodes from which a node receives a tie). In our case, the out-degree of character i is equivalent to the number of other characters that character i speaks to, and i 's in-degree is equivalent to the number of other characters who speak to character i . The network shows that Diana speaks to 17 characters and is spoken to by 11 characters. Steve speaks to 16 characters and is spoken to by 12 characters. From this degree-based perspective, the centrality of the characters is

basically the same. Furthermore, of the 20 named speaking characters in the film, there are only two characters to whom Diana speaks that Steve does not also speak: Antiope (Robin Wright), who dies in the scene in which Steve is introduced, and General Ludendorff (Danny Huston). It seems odd that the distribution of dialogue for these two characters should overlap to this extent, and this does not paint a picture in which Diana's interactions with other characters are independent of Steve's. I will return to this point when comparing the network with other films later in the chapter.

This simple degree-based centrality measure is based on the number of nodes with whom a character is connected. As such, it offers a sense of the breadth of characters' contact within the film network, but it cannot tell us much about the *amount* of dialogue sent to and from the characters. For this, we need to consider the frequency of the interactions between characters. One edge in the diagram could represent just one line of dialogue, whereas another could represent over a hundred interactions. In order to better capture narrative centrality, it is necessary to also weight the edges by frequency of interaction. In network terms, it is then possible to analyse the weighted degree centrality of the characters (Opsahl et al. 2010), which in our case is equivalent to considering the total number of lines spoken and received by the characters. In Figure 4.1, these edge weights are represented by the intensity of the line colours, with darker lines indicating more frequent interaction between a pair of nodes.

In the film, quite unusually, a majority of the named speaking characters are female (11 out of 20, or 55%). However, female characters only speak 43% of the lines of dialogue in the film (331 out of 769 lines). Of these female lines, 67% are spoken by Diana, whereas 60% of the male lines are spoken by Steve Trevor. This suggests that not only do female characters speak less often than male characters, but that this is even more true for secondary characters. What is truly surprising is that Steve speaks more lines than Diana: Diana speaks 222 lines of dialogue in *Wonder Woman*, while Steve Trevor speaks 265 lines. To the extent that speaking can be associated with narrative activity, Diana is actually upstaged in her own film by her sidekick. This raises questions about the idea that Chris Pine is playing "second-banana" in the film (Barker 2017). This upstaging is not due to some kind of anomaly (such as one or two particularly lop-sided scenes in which Steve speaks much more than Diana) but is consistent over the course of the film. Beginning with the first scene in which Steve

speaks, Steve has more lines than Diana in 69.6% of all ensuing scenes in which one of the two characters speaks.

We can contrast this speaking distribution with how much the characters are spoken to. Females make up 49% of the share of dialogue recipients in the film, six percentage points higher than the female share of lines spoken but still six percentage points below the female share of named speaking characters. In *Wonder Woman*, women are spoken to more than they speak, and the reverse is true for men. Diana is the recipient of 308 lines of dialogue, 86 lines more than she herself speaks. Steve Trevor, on the other hand, is the recipient of 234 lines of dialogue, 31 lines fewer than he speaks. In other words, Diana is spoken to more than she speaks, while Steve speaks more than he is spoken to.

While it is difficult to read speaking as anything other than narrative activity, being spoken to is a little more complex. On the one hand, speaking less and being spoken to more might imply a 'seen and not heard' patriarchal femininity which chimes with Laura Mulvey's account of how Hollywood's male gaze establishes an active subject/passive object divide for male and female characters in which the camera defines the "to-be-looked-at-ness" of women in film (Mulvey 1975). However, being spoken to a lot could imply a different kind of power and importance – is Diana seen as the most important character by all other characters who direct their speech at her, and can this explain why critics and viewers do not seem to notice that she speaks less than her own sidekick? Or is it simply that Diana's perceived centrality to the plot is more a product of being visually ever-present throughout the film, rather than her verbal activity? Analysing the distribution of character interactions allows us to focus on these questions, and explore whether the data present a clear picture of how this speaking/spoken-to ratio relates to gendered notions of character importance.

Drawing comparisons with the God of Thunder and the Girl on Fire

To provide some more context to the discussion of *Wonder Woman* in this chapter, I will consider how the results compare to data from two other relevant recent films: *Thor* (2011) and *The Hunger Games* (2012).

Thor

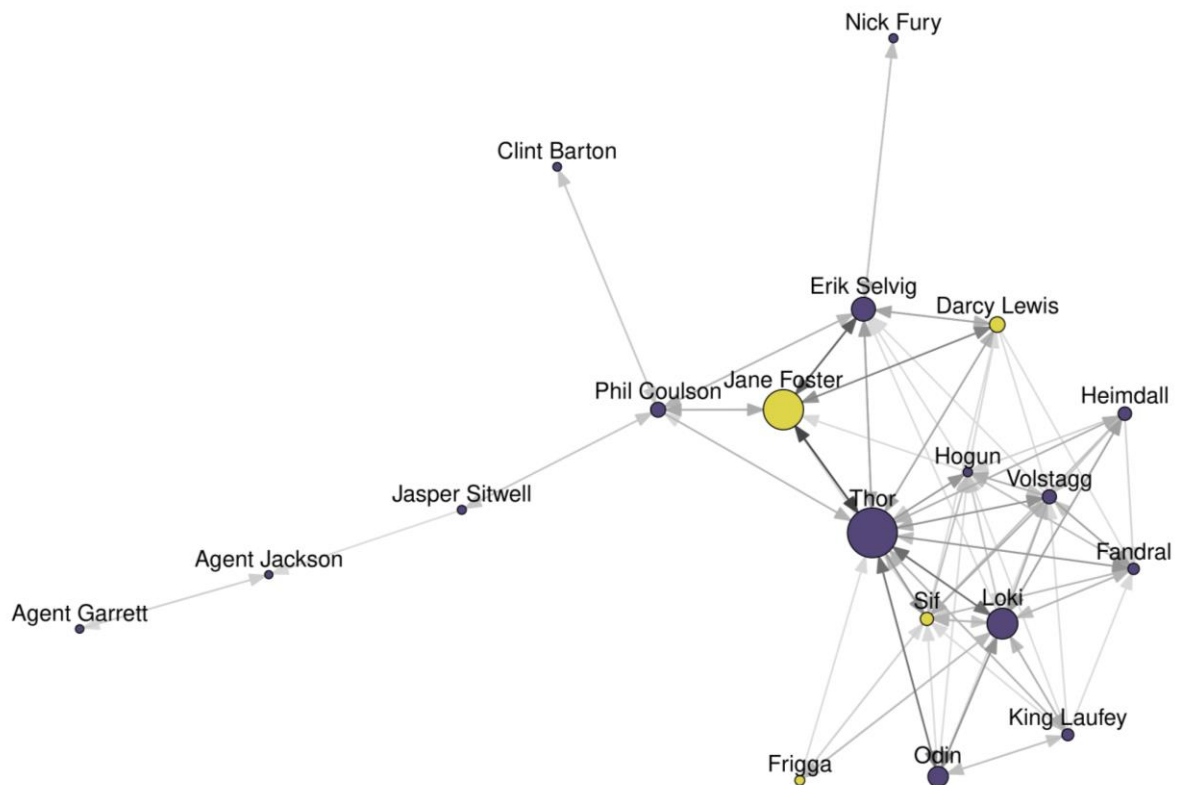
Wonder Woman shares several similarities with *Thor*, rendering it a good point of comparison. Both are superhero action film adaptations of iconic mainstream comic book

characters; both are estimated to have had a \$150 million budget and were marketed to similar audiences; the title characters of both films are demigods whose story is drawn from classical mythology; in the plot of each film, the character travels from their mythical homeland to the earth of mortals familiar to the audience, creating a fish-out-of-water narrative in the second half of each film; and both characters are assisted by a mortal love interest character of the opposite sex.

In *Thor*, the title character (Chris Hemsworth) is a young and irresponsible warrior in the mythical realm of Asgard, who is banished to Earth and depowered by his father Odin (Anthony Hopkins) until he is worthy of carrying his magical hammer, Mjolnir. After landing in New Mexico, Thor comes into contact with astrophysicists Jane Foster (Natalie Portman) and Erik Selvig (Stellan Skarsgård) who help him find Mjolnir and, ultimately, prove himself worthy of wielding it.

The network for *Thor* (Figure 4.2) is similar to the *Wonder Woman* network in that we can see a relatively clear dividing line between the earthly characters and the 'off-world' characters, with Thor in between. Unlike *Wonder Woman*, however, the dialogue is much less centralised around the main hero, with much more interaction between secondary characters, and the presence of named speaking characters as many as four degrees away from Thor. Jane Foster fulfils a similar role in the film to Steve Trevor in *Wonder Woman* in that she acts as Thor's guide in an unfamiliar world, his sidekick in assisting him with his personal mission, and ultimately, his love interest. What is different is that Jane does not need to reinforce Thor's ties to other characters in the film, speaking to only three of the eleven characters to whom Thor speaks besides Jane. This implies that Thor is less dependent on Jane than Diana is on Steve. In fact, Jane speaks to only five characters in total in the film, while Thor speaks to twelve.

Figure 4.2. Character interaction network for *Thor*. Blue nodes represent males, gold nodes represent females. Nodes sized proportionally to number of lines spoken in total. Edge shading indicates frequency of interaction.



Furthermore, Jane does not out-speak Thor, speaking 108 lines of dialogue to Thor's 140. Interestingly, Thor is spoken to more than he speaks (he is spoken to 162 times) whereas Jane speaks more than she is spoken to (she is spoken to 103 times). Given that Thor can be read as a prototypical masculine action hero, this suggests that speaking more than being spoken to may not simply operate along Mulveyan lines of masculine activity/feminine passivity, and the laconism of the character may be a more important consideration. Jane is played as a more neurotic, fast-talking character, whereas Thor presents a conventional brooding, act-first type of active male heroism. This laconism is evident when Thor is considered alongside other lead characters in Marvel films: no title character in the first 18 films in the Marvel Cinematic Universe has spoken fewer lines in their own film than Thor. Even despite this laconism, Thor is still able to comfortably out-speak every other character in the film.

In summary, Thor speaks the most, is spoken to the most, and has a neighbourhood of interactions that is vaster than and easily distinguishable from that of anyone else in the

film. Thus, there is no debate over who is the most central character in *Thor*, unlike in *Wonder Woman*.

The Hunger Games

The Hunger Games provides an interesting comparison for different reasons. Katniss Everdeen (Jennifer Lawrence), the lead character of *The Hunger Games*, has been hailed as a new, more progressive kind of female action hero than Hollywood has typically offered (Kirby 2015; Odumusi 2016; Scott and Dargis 2012). As noted in Chapter 3, the literature on women in action cinema has identified a growing trend since the late 1980s towards female characters in action films embodying both traditionally masculine and feminine traits (Brown 2004; Inness 2004; Tasker 1993). Masculinity in the action cinema often produces a laconic, violent antihero type who lets his actions do the talking (Tasker 1993). Female action heroes tended to figure as sidekicks and love interests for these characters initially, before an increase in starring roles for women in big-budget action films in the early 2000s such as *Lara Croft: Tomb Raider*, *Charlie's Angels* and *Kill Bill* (Purse 2011; Schubart 2007). In these roles, female characters often took on many masculine traits, being active narrative forces in their own right. However, as women became more common in action films as 'action heroines', shifting away from more passive traditions of female representation, there developed a "need to compensate for the figure of the active heroine by emphasising her sexuality, her availability within traditional feminine terms" (Tasker 1993, 19). This produced what Marc O'Day refers to as the "action babe" cinema (O'Day 2004), where complex gender performances are wrapped up in a highly sexualised presentation of the female action hero and her body (Inness 2004).

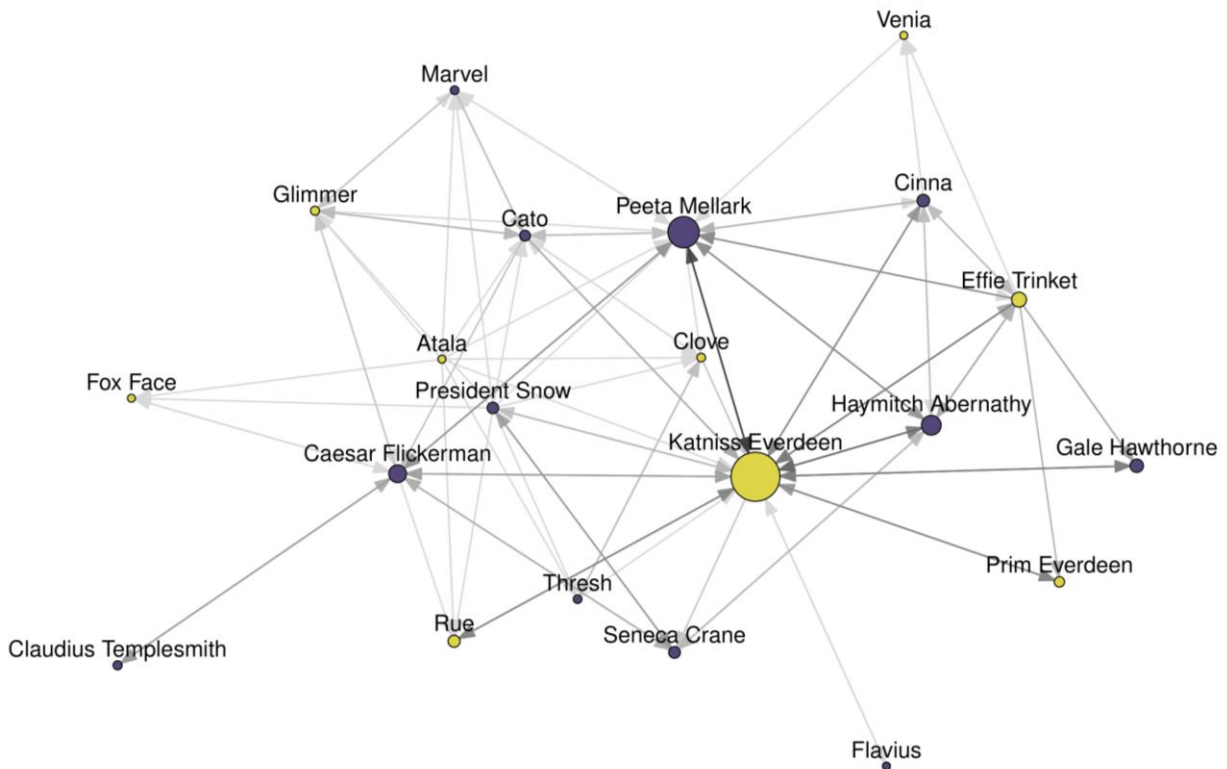
However, commentators have claimed that *The Hunger Games* provides a different example of a female action hero not simply because Katniss contains both masculine and feminine traits, but also because her story and characterisation are not principally defined from her gender and the sexual availability of the character (Kirby 2015). *The Hunger Games* (based on the novel by Suzanne Collins) is set in a dystopian future in the North American country of Panem, where a wealthy and technologically advanced city called the Capitol is surrounded by twelve districts. The districts are kept poor and ruled oppressively by a strong paramilitary presence as punishment for a failed uprising against the Capitol in the past. As further punishment, each year two 'tributes', one male and one female, each

between the age of 12 and 16, are selected from each district to participate in a televised last-man-standing arena deathmatch known as the Hunger Games. In the film, Katniss and a young man named Peeta Mellark (Josh Hutcherson) make up the tributes for District 12 after Katniss volunteers to take the place of her younger sister Prim (Willow Shields). Throughout the film, Katniss displays a prowess for hunting and survival, a disinterest in romance, a stoic and laconic façade hiding an emotional vulnerability, and strong maternal care instincts. Unusually for female action heroes, Katniss needs to be neither masculinised nor sexualised in order to be heroic.

Reviewers of *Wonder Woman* for both the *Guardian* (Williams 2017) and the *New York Times* (Bruni 2017) credited *The Hunger Games* with moving the female action hero forward, as has *Wonder Woman* director Patty Jenkins (Buckley 2017). Moreover, in the article supporting Patty Jenkins' placement as a runner-up in TIME magazine's 2017 Person of the Year award, *Women and Hollywood* founder Melissa Silverstein is quoted as saying, "There would be no *Wonder Woman* without *The Hunger Games*" (Luscombe 2017). Thus, the film makes for an interesting comparison due to its relevance as a key recent reference point in how the female action hero might be evolving into new territory.

In the network for *The Hunger Games* (Figure 4.3) we can see a complex web of interactions centred around the District 12 tributes Katniss and Peeta. In the film, Katniss speaks 189 lines of dialogue, considerably more than Peeta's second-most 108 lines. Katniss is spoken to 254 times, while Peeta is spoken to 126 times. Both characters are spoken to more than they speak, but Katniss stands far ahead of all other characters in both measures. This spoken-to-ness is likely due to the fact that both Katniss and Peeta spend much of the film under the guidance and tutelage of more senior figures such as Haymitch (Woody Harrelson), Effie (Elizabeth Banks) and Cinna (Lenny Kravitz), needing much instruction and advice in navigating life in the Capitol. As with *Thor*, being spoken to more than speaking is not antithetical to narrative centrality and does not seem to be straightforwardly gendered. Although women only account for 9 of the 21 named speaking characters in the film (43%), 45% of the lines are spoken by women.

Figure 4.3. Character interaction network for *The Hunger Games*. Blue nodes represent males, gold nodes represent females. Nodes sized proportionally to number of lines spoken in total. Edge shading indicates frequency of interaction.



Peeta and Gale (Liam Hemsworth) can both be read as sidekick or love interest types, though neither fits that mould neatly. Nonetheless, we can consider the independence of Katniss from these characters in the dialogue network. Katniss speaks to twelve other named speaking characters in the film, of whom Peeta speaks only to five and Gale speaks to none. Peeta speaks to nine characters in total in the film. Katniss is even independent of Haymitch, a senior male mentor figure who acts as Katniss and Peeta’s guide to the Games and the Capitol, and who is also the character with the third-highest number of lines. Haymitch speaks to only four of the characters to whom Katniss speaks. Katniss does not rely vocally on any of these characters to chart her own path through the narrative. Again, the story of *The Hunger Games* clearly belongs to Katniss, as *Thor* belongs to Thor.

Moreover, the *Hunger Games* network shows that female-centred films can define their hero in ways which establish independent leadership without resorting to individualism and isolation. Figure 4.3 shows that, although a majority of the named speaking characters are male, Katniss is still able to forge positive and narratively important relationships with other women across multiple settings in the film. Most notably, Katniss’ success in the film is

aided by her relationship with three female characters: her younger sister Prim, whose place Katniss takes in the Games; her chaperone Effie Trinket, a figure of guidance in the Capitol; and particularly Rue (Amandla Stenberg), a young woman with whom Katniss allies herself in the arena, forming a partnership that attempts to subvert the violence of the Games through wits, the sharing of knowledge about the arena, and power through solidarity. Such opportunities for collective empowerment are not present in the *Wonder Woman* network, where Diana's growth and success in the second and third acts of the film owe far less to her relationships with other women than is seen in *The Hunger Games*.

Vocal and relational (dis)empowerment in *Wonder Woman*

These findings raise a number of issues. First of all, 55% of the named speaking characters in *Wonder Woman* are women, and only 43% of named speaking characters in *The Hunger Games* are women. Despite this, women speak a greater share of the lines in *The Hunger Games* (45%) than in *Wonder Woman* (43%). In *Thor*, women speak 27% of the lines despite accounting for only 21% of named speaking characters. This suggests that knowing the proportion of speaking characters that are female – the most detailed statistic on the vocal disempowerment of female characters offered by most content analyses – can provide only a partial picture of how this dimension of narrative marginalisation in popular cinema might operate.

Moreover, while in all three films the lead character was the character most spoken to by other characters in the network, *Wonder Woman* was the only film in which that character did not also speak the most. This discrepancy cannot be explained simply as a laconic dialogue profile, as the lead characters in both *Thor* and *The Hunger Games* are even more nonverbal than Diana, though both comfortably out-speak all other characters in their films. Diana's narrative centrality is clear, but what is remarkable about this film is that her centrality is matched by that of her male sidekick. In *Thor*, a film with many similarities to *Wonder Woman*, Thor's female sidekick and love interest clearly plays second-fiddle in terms of speaking, being spoken to and narrative centrality. Thor is also independent of Jane Foster in that their immediate dialogue networks look significantly different. Likewise, in *The Hunger Games*, Katniss emerges as a clear vocal leader in the film, speaking 81 more lines of dialogue than anyone else in the film and being spoken to more than twice as many times as anyone else. Though both Peeta and Gale are presented as allies and possible

romantic partners in the film, the independence of Katniss' neighbourhood from these characters in the character interaction network suggests that she relies on neither to drive the narrative. In both *Thor* and *The Hunger Games*, the main heroes are not defined by their romantic relationships, and their narratives expand beyond the confines of such ties. In *Wonder Woman*, on the other hand, the narrative plays out almost entirely through the dyadic relationship between Diana and Steve, and Diana's actions are seldom independent from Steve's. Thus, the nature of Diana and Steve's positioning in the *Wonder Woman* network gives reason to question whether the film really can be understood as female-led, especially when considered in the light of these two comparisons. Diana does not appear to be the vocal leader of *Wonder Woman*.

The power-with model outlined above calls for solidarity as "collective empowerment" (Allen 1998, 35). This chimes with Neal Curtis and Valentina Cardo's analysis of how the influence of third-wave feminism on comic books has been increasingly reflected in stories where female superheroes save the day through solidarity, group consciousness and "collective action against patriarchy" (Curtis and Cardo 2017, 12). In *Wonder Woman*, Diana's combat skill and ultimate victory over her enemies clearly demonstrate the operation of both power-over and power-to in the narrative. Diana dispatches the German troops she faces with ease and ultimately overcomes her own doubts to overpower the villain Ares and banish him. However, from looking at the dialogue network and Diana's positioning amongst the other characters in the film, it is difficult to see how power-with can be said to operate in *Wonder Woman*. Unlike in *The Hunger Games*, opportunities for collective action are limited in *Wonder Woman* given that the only woman Diana interacts with once leaving Themyscira is Steve's secretary Etta Candy. Although Diana also volunteers to leave Themyscira with Steve in her comic book origins, this does not presage the kind of isolation from other women that is depicted in the film (Curtis 2017). In *Wonder Woman* stories from the Golden Age of comics, Etta Candy and a band of girls who were all students at the fictional Holliday College often came to Diana's aid, and were a source of sisterhood and solidarity for Diana (Lepore 2014). In the film, however, Diana really is in the World of Men once she leaves Themyscira. In the end, it is not collective empowerment but the heroic sacrifice of her male love interest Steve Trevor that gives Diana the strength to win.

There is further cause for concern in how naturally Diana is pulled back from singular narrative centrality (such as the centrality seen with Katniss Everdeen) without us even noticing, and in a way that is rarely seen in male-led blockbusters. The film does contain scenes where Diana expresses herself loudly and straightforwardly in the World of Men, with the confidence of a woman who finds the idea that she should not be expected to do so because of her gender ridiculous. However, these scenes stand out as exceptional in a narrative where a status quo of Diana all-too-readily following Steve's leadership (despite being physically and intellectually superior to him) is quickly established once the pair reach London. Literature on post-feminism and film has noted how popular films often "pay lip service to feminism" by occasionally evoking feminist sentiments and presenting what appear to be strong female characters whose narrative authority is undermined by patriarchal tropes (Bleach 2010; McRobbie 2004; Press and Liebes 2016, 267). A pessimistic reading of Diana's positioning to Steve in *Wonder Woman* would take the combination of Diana's occasional outbursts of forthrightness and simultaneous willingness to follow her sidekick as such a predicament – we are so busy cheering for Diana's more assertive moments that we fail to question why she is being out-spoken in the majority of her scenes. Her dependence on Steve is normalised at the same time as her independence is celebrated.

Comments by director Patty Jenkins raise further questions about the post-feminist resonances of the film, with the director responding to being asked how much she tried to insert feminism into the film by saying "not at all," adding, "I have always wanted to be last-wave feminism, where you're so feminist, you're not thinking about it at all" (Ramin Setoodeh 2017). These comments may help to explain how the film came to feature an origin story for Diana in which she is the daughter of Zeus and Hippolyta (a story established in a company-wide continuity reboot at DC Comics in 2011) rather than the matriarchal and parthenogenic origin story which had been established in one form or another for 70 years from the character's creation, in which Diana is moulded from clay by Hippolyta and given life by Athena and Aphrodite. As Neal Curtis has argued, this revision to the character removes one of Wonder Woman's most symbolically subversive challenges to patriarchy: the irrelevance of men to her creation and her strength (Curtis 2017). Moreover, this 'last-wave' feminism sounds quintessentially post-feminist in that it puts the struggle for equality in the rear-view mirror. Jenkins' individual success risks distracting from the inequalities that

other women in the industry face. Research from the Annenberg Inclusion Initiative finds that, in the 100 highest-grossing films in each year from 2007 to 2017, only 53 of 1,223 directors (4.3%) were female (Smith et al. 2018). Furthermore, the same research finds that women have not made up more than 32.8% of speaking characters in any of these years. Being so feminist that you don't think about it at all may be an appropriate attitude for Diana to take, given that she comes from a matriarchal paradise. However, filmmakers operating within the patriarchal domain of Hollywood may not be able to take the same position without consequence given how entrenched the under-representation of the female voice is both on-screen and behind the camera.

Blockbuster benchmarks and beyond

Based on the comparative analysis in this chapter, I argue that character interaction networks reveal that the narrative marginalisation of the female voice in mainstream Hollywood cinema is more complex than the current empirical benchmarks based on the distribution of speaking characters. As such, the above discussion illustrates how the approach taken in this thesis adds to our very limited understanding of how vocal (dis)empowerment operates in blockbuster cinema. Here I explore the implications of this argument in more detail, drawing on the full corpus of character interaction data collected in this research.

Figure 4.4. Gendered distribution of dialogue in 27 blockbuster films. Yellow squares indicate the percentage of speaking characters that are female. Dashed vertical line indicates industry benchmark for this figure of 30%.

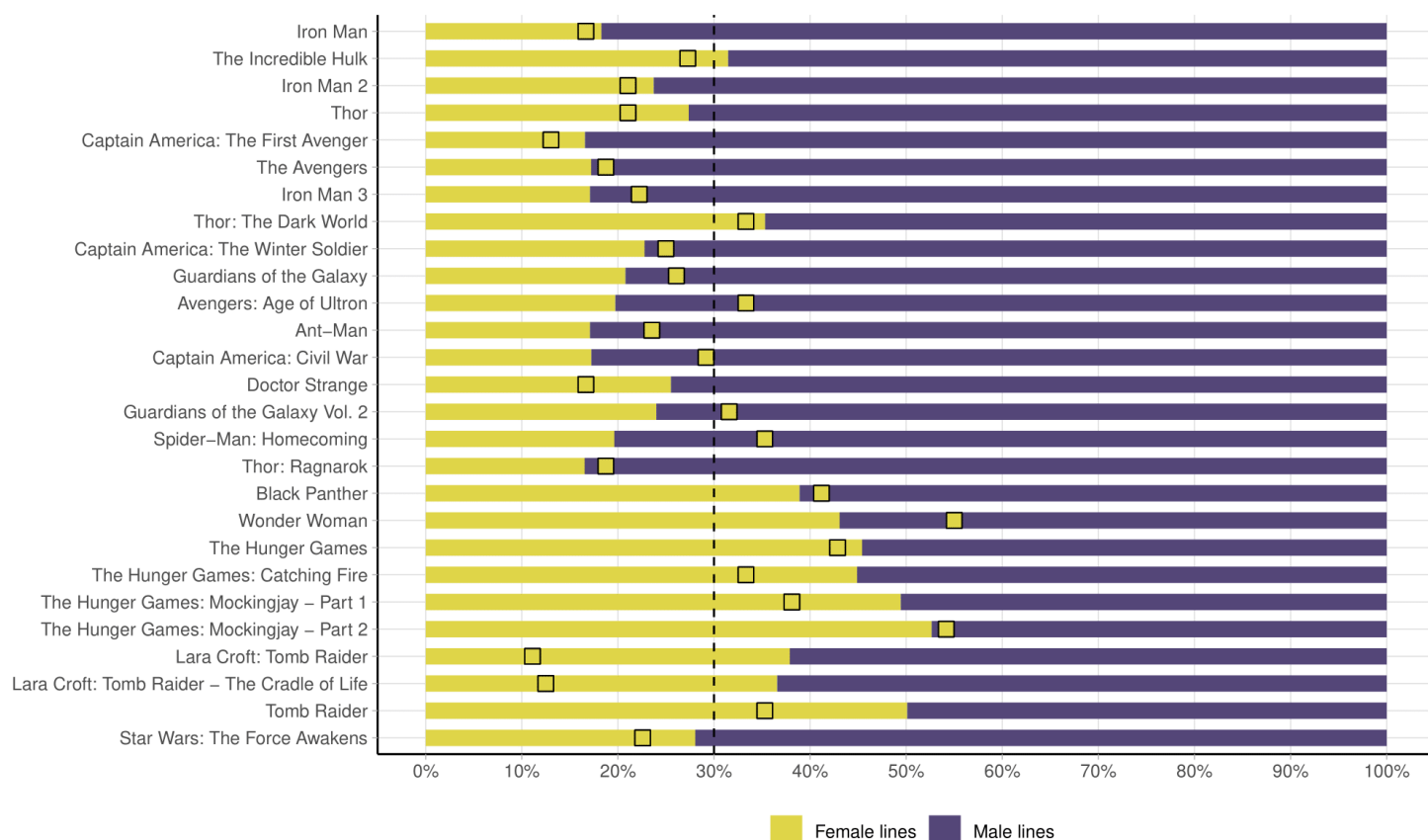


Figure 4.4 shows that the female share of lines is often markedly different from the female share of speaking characters. In the male-driven superhero films of the Marvel Cinematic Universe, the share of dialogue is lower than the share of speaking characters in the majority of the films. Moreover, the share of dialogue spoken by females in these films is significantly lower than the industry benchmark figure of 30% derived from annual content analyses of speaking characters in top-grossing films. This means that the empirical figures we typically rely on for understanding the marginalisation of the female voice in Hollywood actually conceal how little we hear women speak in some of the highest-grossing and most popular blockbusters produced in Hollywood.

Another thing to note from Figure 4.4 is that the female share of speaking characters varies much less in the male-fronted films, where almost all observed films fall in the 15-35% range, than it does for the female-fronted films, where the share varies between 10% and 60%. This suggests that the male-fronted blockbuster narrative has been much more standardised (along with the range of ways in which female characters can feature in these

narratives), than the female-fronted blockbuster narrative, which is always in a state of negotiation and reaction. As noted above, the year-on-year consistency of the gendered share of speaking characters figure is remarkably stable within and between studies. The implications of the data gathered here suggest that this stability may stem from the fact that the majority of top-grossing films are male-driven, and the character systems at the core of these male-driven narratives do not vary much. If the patterns in female-led cinema are less entrenched, then the increase in female-fronted blockbusters (recent examples include *Rogue One* (2016), *Bumblebee* (2018), *Captain Marvel* (2019), *Alita: Battle Angel* (2019) and others) could therefore open up new possibilities for the gendered vocal dynamics in blockbuster narratives. This is an opportunity to reflect on the gendered allocation of discourse in this emerging representational space.

The discussion of *Wonder Woman* in this chapter problematises the notion that a film in which women speak less than men, speak less than they are spoken to and have few narrative opportunities to interact with other women should be described as a “female-led” film. Thus, analysing patterns of character interaction illustrates that our understanding of “female-led” in popular cinema requires more than simply identifying the presence of “strong female characters”. The data in Figure 4.4 further illustrates this by showing that, even in most of the films we think of as “female-led”, men still typically speak more. What does this mean for how we understand the “female-led” blockbuster? What kind of narrative world do these strong female characters inhabit? To explore these questions and their implications for scholarship in this area, it is useful to take a closer look at the data for the eight ostensibly “female-led” films in the corpus (*Wonder Woman*, the *Hunger Games* series, and the *Tomb Raider* series).

Figure 4.5. Gendered distribution of dialogue in eight female-fronted films, with female share of dialogue divided between lines spoken by the lead character and non-lead characters.

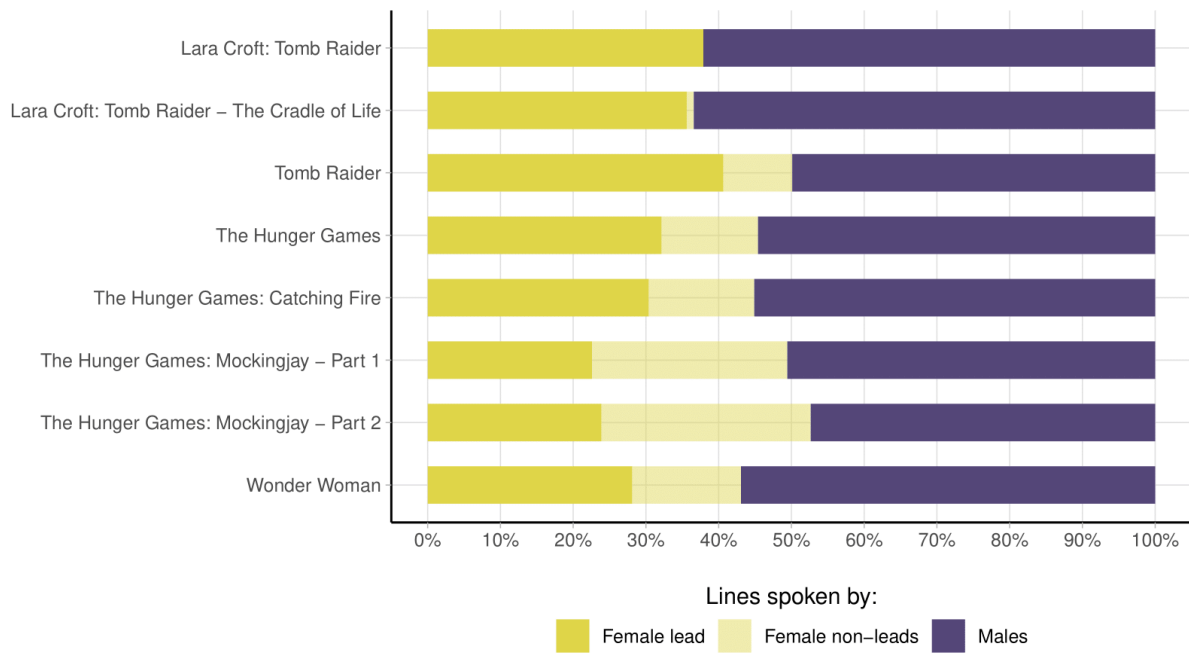


Figure 4.5 shows the distribution of dialogue in these eight films. In order to illustrate how much the narrative centres around the “strong female character” in each film, the female share of lines is divided into lines spoken by the lead character and lines spoken by other female characters. Figure 4.5 shows that in the action babe-era *Tomb Raider* films, women only speak inasmuch as Lara Croft speaks. In fact, across both of these films, there is only one named female speaking character besides Lara – an old friend of Lara’s named Shu Mei who briefly appears in the second film, speaks five lines, and is only named in the credits. We can see from Figure 4.5 that the *Hunger Games* series, on the other hand, provides much more space for female characters to exist in the world alongside the series’ hero Katniss, and this space actually increases as Katniss’ strength and heroism grows over the course of the series. In fact, in the final two films of the series, more lines are spoken by secondary female characters than by Katniss herself. In *Wonder Woman*, the share of lines spoken by female non-lead characters is greater than in the *Tomb Raider* series, though as discussed above, this is largely contained to the opening scenes of the film on Themyscira.

Figure 4.6. Gendered distribution of dialogue in eight female-fronted films, with female share of dialogue divided between lines with at least one female among recipients and lines spoken only to males.

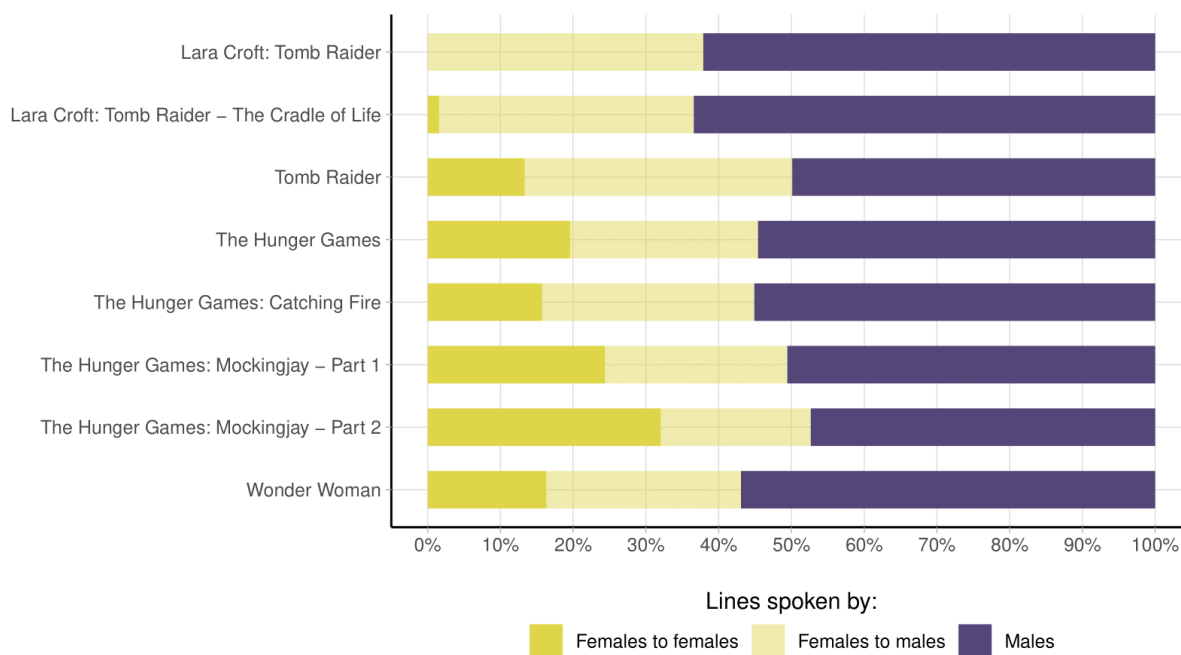


Figure 4.6 again shows the share of dialogue in the female-fronted films, with the female-spoken lines this time divided by whether there was at least one female among the recipients of the line of dialogue. The chart illustrates the relational dimension of how female discourse is marginalised in popular cinema, even among films that are considered female-led. In six of the eight films, more than 80% of the character interaction is either male speech or female speech directed exclusively to men. This illustrates that blockbuster films featuring strong female characters as their lead tend to individualise these characters' stories, letting the vast majority of the narrative unfold through interactions with men. This suggests that in female-led blockbuster cinema, empowerment and heroism are defined primarily at the level of the exceptional individual character, with little space for female-to-female discourse to factor into that strength or heroism.

Figures 4.5 and 4.6 show that female-fronted narratives can play out through different modes of relationality. This is most clearly indicated by considering some of the differences between *The Hunger Games: Mockingjay – Part 2* and *Tomb Raider*. These two films are the only films in the 27-film corpus in which a majority of the lines of dialogue are delivered by female characters (though only narrowly in both cases: 50.1% in *Tomb Raider* and 52.7% in *Mockingjay – Part 2*). A closer look at the aggregated patterns of interaction in these films

(Figures 4.7 and 4.8) reveals key narrative differences which illustrate many of the central substantive claims at the core of this chapter.

Figure 4.7. Character interactions in *The Hunger Games: Mockingjay – Part 2*. Blue nodes represent males, gold nodes represent females. Nodes sized proportionally to number of lines spoken in total. Edge shading indicates frequency of interaction.

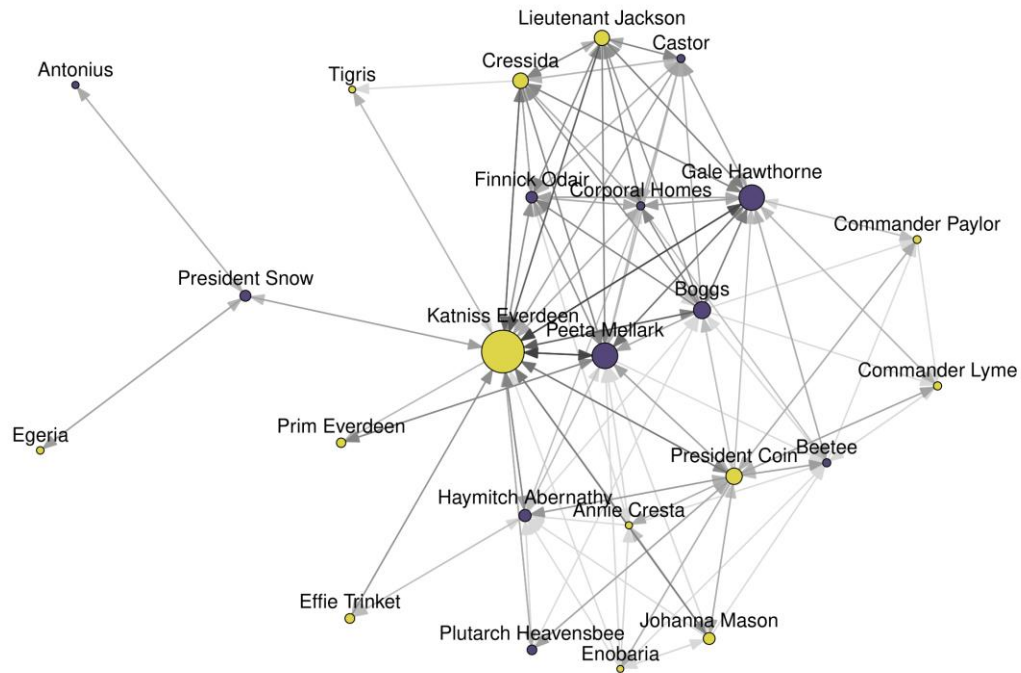
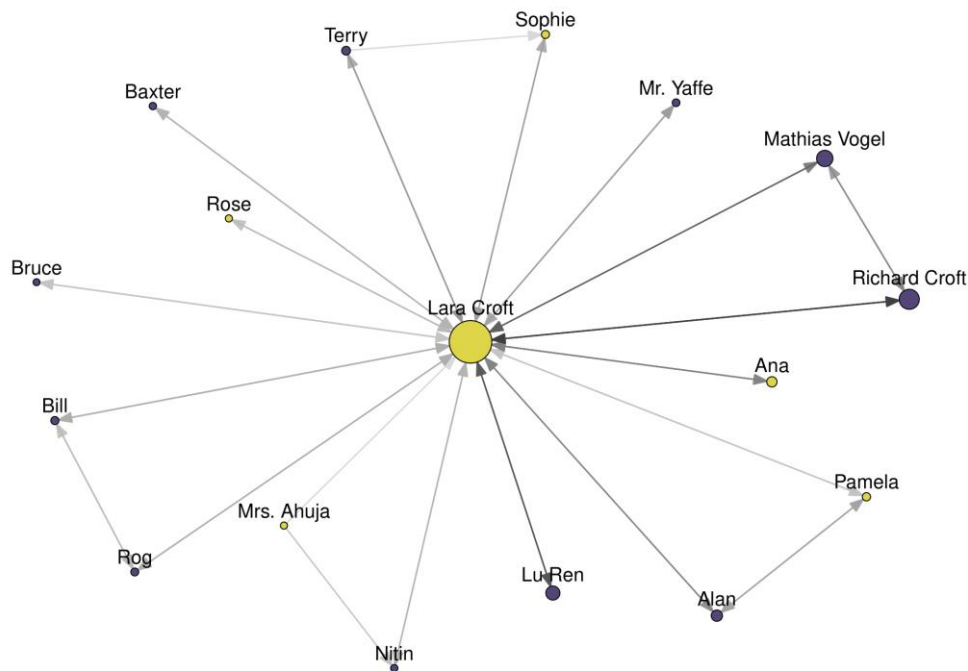


Figure 4.7 shows the network of interactions in *Mockingjay – Part 2*. While Katniss is clearly at the centre of the various webs of interaction, being the character who we follow most through the narrative, we can see complex patterns and clusters of character relations in the diagram. Notably, we see several loci of power and leadership in the network, with President Snow, President Coin, Boggs, Lt. Jackson and Gale all occupying positions of leadership throughout the film. Not only is there a fairly even gender split among these characters with power, but we can see that, in each case, their leadership and power is always secondary and separate from Katniss' role and position in the narrative. We actually see Katniss leading, vocally and independently of the other characters. However, her leadership is not defined in isolated, individualistic terms, as she forms multiple complex relationships with other women, who are variously mentors (Effie), allies in the fight against the Capitol (Lt. Jackson, Cressida, Johanna Mason), political adversaries (President Coin) and family (Prim). Situating Katniss within the context of these relations and how the narrative

flows through them allows us to consider her empowerment and independence as products of her narrative positioning, and not simply as properties inherited axiomatically through her role as “strong female character”.

The narrative of *Mockingjay – Part 2* stands in stark contrast to that of *Tomb Raider*, as shown in Figure 4.8. In *Tomb Raider*, there is no complex web of character interaction. The narrative revolves around central hero Lara Croft: every named speaking character interacts directly with Lara, and no other character speaks to more than one named speaking character that is not Lara. The narrative works almost as an inversion of the *Wonder Woman* narrative, beginning in the everyday world for the first act, before Lara travels to a mythical island named Yamatai on which she meets no women. On the island, Lara faces a number of trials, but the strength that she finds to overcome them is largely down to the discovery of her stranded and presumed dead father on the island, a character through relation to whom Lara is almost completely defined as a character. In *Tomb Raider*, empowerment is a mixture of individual toughness and survival skills, and devotion to and love for male role models. The only other female character of narrative importance (in this case, the only other female character to speak more than eight lines) is Ana, Lara’s step-mother, with whom she has a cold and antagonistic relationship. At the level of individual characterisation, *Tomb Raider* makes a number of significant strides ahead of its earlier action-babe era instalments. In the 2018 reboot, Lara is neither sexualised nor objectified, and her story does not feature a love interest element. However, the relational approach allows us to see narrative mechanisms which contain her empowerment within individualistic and patriarchal terms, again illustrating the value of considering the strong female character within the context of her position within the narrative character system.

Figure 4.8. Character interactions in *Tomb Raider*. Blue nodes represent males, gold nodes represent females. Nodes sized proportionally to number of lines spoken in total. Edge shading indicates frequency of interaction.



Thus, while both *Mockingjay – Part 2* and *Tomb Raider* feature strong female characters and both give the female voice equal footing with the male voice, these two films illustrate that representations of empowerment and leadership are much more complex, relational and variable than existing discourses surrounding female action heroes typically allow. This implies the need for scholarship on women in popular cinema to engage with the question of what we mean when we say a film is “female-led”, and what kinds of narratives of empowerment are on offer through these blockbuster heroes.

Conclusion

Critics and viewers have reacted positively to *Wonder Woman*, and this is likely to have a positive impact on the prospects of women starring in and making blockbusters. As Hollywood looks to capitalise on the financial and critical success of *Wonder Woman*, we are likely to see many more ostensibly female-led action projects given the go-ahead. This moment therefore provides a golden opportunity for reflecting on how strong female characters are narratively positioned in contemporary blockbuster cinema, and where

progress might be made. This is all the more important because our understanding of this issue is limited by a lack of empirical research into the vocal and relational dimensions of how women feature in blockbuster narratives. My approach in this chapter has attempted to use a character interaction network approach to address this gap in the research, to complement and begin to complicate the extensive scholarly literature of gendered spectacle.

The findings here suggest a number of ways in which a character network approach can help us make sense of the complex gendered dynamics of the films analysed in this chapter. Firstly, the in-depth empirical approach to analysing vocal representation illustrates that discussions of the marginalisation of the female voice need to go further than proportions of speaking characters in order to build deeper understanding of how gendered dialogue structures film narratives. Distributions of speaking characters can vary significantly from the actual distribution of dialogue and it is the latter that better reflects the way the story is told, as seen in the fact that *Wonder Woman* is vocally male-driven despite an opening act which introduces a number of female speaking characters. Moreover, the approach taken in this chapter illustrates the value of directed dialogue data, as there are interesting patterns of speaking and being spoken to which see women more likely to receive dialogue than speak in *Wonder Woman* while the reverse is true for men.

Secondly, as well as knowing how much women speak in films, we ought to also consider to whom they speak. One advantage of this relational focus is that it allows us to consider how female characters' interactions establish their narrative independence from male characters. The comparative network-based approach presented here shows that, unlike the central characters in *Thor* and *The Hunger Games*, Diana is not the clear vocal leader of her film and her interactions with other characters are not independent of those of her sidekick and love interest Steve Trevor. This reveals a narrative structure in which the bounds of Diana's journey are almost entirely contained within her relationship with Steve, while heroes in the other two films chart narrative paths which are much broader than any individual relationships. The second advantage of the relational focus is that it reveals opportunities for collective empowerment in the narratives. While both *The Hunger Games* and *Wonder Woman* feature strong female characters as their heroes, the character networks for the two films reveal vastly different models of empowerment. Katniss draws

on relationships with other female characters throughout the narrative of *The Hunger Games*, drawing strength from female friendship, mentorship and solidarity. Diana, on the other hand, like Lara Croft in the *Tomb Raider* series of films, becomes quickly isolated among men and barely interacts with any women once answering the call to adventure.

As a result of these various contributions, the character interaction network approach is able to illustrate that there are limits to the extent to which *Wonder Woman* can be said to be female-led. Opening this discussion out to the other ostensibly female-led films in the corpus shows that men speak more than women in the majority of these films, and when women do speak it is usually to men. Thus, the approach taken here allows us to unpack the gendered narrative forces operating on the “strong female character” in a way which most conventional readings do not capture. This is illustrated by the gap between the patterns in the data presented in this chapter and the critical reception to *Wonder Woman*, wherein strong claims were made about Diana’s empowerment as a strong, independent leader. The discussion in this chapter suggests that in order for us to see more strong, independent female leaders on the big screen, strong female characters need to be given the freedom from male characters to be seen actually leading, vocally as well as visually.

Chapter 5 – Measuring narrative centrality in character networks

Introduction

This chapter aims to develop a novel dynamic approach to investigating the positions of characters within film narratives. As outlined in Chapter 2, several studies now exist which recognise the potential of network analysis for offering insights into the study of fictional narrative texts and the characters therein (e.g. Moretti 2011; Sack 2014; Waumans et al. 2015). These studies range from in-depth textual readings of particular texts to computational interventions in literary network extraction with little to no literary analysis. What the studies all share is the assumption that network tools might assist in the analysis of narrative texts, an assumption largely born out of the growing field of digital humanities scholarship. In this chapter, I aim to contribute to the literature in this area by intervening in the discussion of how we relate node-level network measures to interpretative readings of characters' positions within narratives. In the process, I argue that the dominant approach of applying off-the-shelf centrality measures such as degree and betweenness to aggregated static character networks limits the usefulness of the character networks approach because of the amount of narrative information that is lost through aggregation. Instead, I draw on recent developments in representing and analysing temporal network dynamics to develop a dynamic measure of the relative narrative positions of characters through time (Broccatelli et al. 2016; Everett et al. 2018; Moody 2002). By developing the measure in an interdisciplinary way which draws on key ideas from social network analysis, film studies and narratology, I aim to also develop the conceptual links between the ideas of narrative positions and network positions which has implications for the character networks approach in general. My contention is that dynamic approaches such as the one I pursue here are needed in order to capture the way a story is told through its characters.

The structure of the chapter is as follows. In the next section, I consider the problem of how to say something meaningful about the relative importance of nodes within the narrative, focusing on how to appropriately represent narratives as network data given the importance of sequence in narratives. Following this discussion, I propose a new approach to measuring the narrative positions of characters in fictional texts and define a dynamic

relational measure based on the acts of speaking and being spoken to. Finally, I offer an application of this measure to the 2015 film *Star Wars: The Force Awakens*, drawing out the gendered dynamics in the film in light of the substantive questions about gendered representations at the core of this thesis. This case study illustrates some of the things the measure allows us to observe about the ways in which characters relate to the narrative that cannot be inferred from static measures. In particular, through a focus on the vocal and relational disempowerment of women in film narratives, I show that the approach allows us to use character network data to engage with existing debates in the study of social representation in fictional narrative texts in a way which previous character network approaches cannot. I argue that by focusing on the conceptual links between narrative texts and the way we represent them as data, network-based measures such as this have the potential to contribute more to character-oriented scholarship on those texts than existing approaches have been able to offer.

Relating network positions to narrative positions

One of the ways in which network tools can be brought to bear on the study of narrative texts is through the application of measures of node importance to the characters in a text in order to explore existing debates and theories concerning issues such as visibility, representation and the relationship between characters and narratives. There are a range of measures which aim to summarise the importance of a node based on its position in the network, and such measures are often known as centrality measures. The most well-known and commonly deployed network centrality measures are degree, betweenness and closeness. As noted in Chapter 4, degree counts the number of edges connected with a node, and can be calculated for directed or undirected graphs. Betweenness measures how frequently a node lies on the shortest path between all the pairs of other nodes in the network. As such, it gives an indication of the power of a node to control flows (e.g. of information or resources) through the network. Closeness measures the shortest paths from a node to each other node and uses the inverse of these path lengths to measure how “close” a node is to all other nodes. For fuller discussion of each of these measures, see Freeman (1978).

A key question for character network-based study of fictional texts is how to leverage the analytical power of network centrality measures to gain insight into the relative importance

of characters within a narrative. The strategy that has been pursued in existing character networks approaches has been to apply the standard centrality measures mentioned above in order to make claims about the relative positions of characters within narratives. For example, Moretti (2011) looks at the degree centrality of characters in *Hamlet*, using binary and undirected data in which a tie represents the fact that any amount of words flowed between two characters. He uses this network data to claim, for example, that Claudius is the “second most central character in the play” because he interacts with 13 characters, one more than Horatio and two fewer than Hamlet (Moretti 2011, 88). Kydros et al. similarly present degree, betweenness, and closeness measures for characters in Homer’s *Iliad*, though they note that interpretation of the results is “not so easy” (2015, 125). The assumption seems to be that, if character network structure is able to reveal aspects of narrative structure, then network centrality measures must be able to measure centrality within the narrative. In this section, I argue that the utility of this approach is limited because it is based on network representations that do not adequately capture narratives in ways that allow for meaningful conceptualisation and interpretation of the relationships between characters and narratives.

Network representations

Brandes et al (2013) note that there are two steps to obtaining a network model: first, there must be an appropriate abstraction of a phenomenon to a network concept; then, there must be an appropriate representation of that network concept as data. In the case of character networks, the phenomenon in question is a narrative text. Thus, the first step is to abstract the narrative text to a network concept. As Moretti (2011) has noted, Alex Woloch (2003) offers a compelling basis for so doing in his work on major and minor characters in the literary novel. Woloch argues that what we see as major and minor characters is the product of the “character-space” that those characters occupy within a broader “character-system” (Woloch 2003). In narratives, our attention is a finite resource which can only be allocated to certain narrative elements at once. Thus, we can think of narratives as a distribution of attention, as “[n]arrative meaning takes shape in the dynamic flux of attention and neglect toward the various characters who are locked within the same story but have radically different positions within the narrative” (Woloch 2003, 2).

The relational aspect of this conceptualisation of narrative texts as a dynamic distribution of attention through a character system becomes clearer when we extend Woloch's ideas to more visual media such as film. In fact, Woloch's ideas resonate with much of the theory on film narratives, where it has been noted that the technical practices of mainstream Hollywood film production were designed "to guide audience attention to salient narrative events from moment to moment" (Thompson 1999, 1). Work in this area has aimed to pair an analysis of film narratives with a deep understanding of narrative comprehension and how viewers process visual narratives, and has emphasised the role of relations between narrative elements (including characters) in the process. For example, David Bordwell's theory of narrative states that "comprehending a narrative requires assigning it some coherence. At a local level, the viewer must grasp character relations, lines of dialogue, relations between shots, and so on" (Bordwell 1985, 34). Edward Branigan notes how these local events feed into a "global interpretation of changing data measured through sets of relationships" (Branigan 1992, 4). Moreover, Branigan argues that psychological experiments have shown that "an individual's attention does not spread equally through a narrative text but works forward and backward in an uneven manner in constructing large-scale, hierarchical patterns which represent a particular story as an abstract grouping of knowledge" (Branigan 1992, 16). Thus, we can think of film narratives as dynamic patterns of character-driven events from which we construct these abstract relational groupings of knowledge.

These ideas suggest that thinking of narratives as systems of character relations wherein our attention as readers or viewers of the text is distributed unevenly into hierarchical patterns seems like a useful way of looking at a narrative text. However, the second step in obtaining the network model (the representation of this network concept as network data) is more fraught because existing character network approaches typically represent the character system using static, aggregated network data. A brief consideration of how narratives have been defined and theorised will illustrate why this kind of network representation limits the utility of such approaches.

Narrative as dynamic

Narratologists have long recognised that the narrative is by definition a dynamic and temporal phenomenon, and the importance of temporal sequence is fundamental to almost

all definitions of narrative (Abbott 2008; Bal 2017; Chatman 1980; Genette 1980; Ricœur 1980). One of the ways that narrative is frequently defined is through its relation to story. Story is usually defined as the events that take place, while narrative is defined as how that story is told. This opens up the question of story discourse versus narrative discourse and, crucially, story time versus narrative time (Chatman 1980; Genette 1980). Seymour Chatman (1980) theorised this as the “double time structuring” of narrativity – our engagement with a narrative asks us to understand the way in which story events are ordered even while those events may be told to us in a completely different order. For example, a simple story might involve 3 events: A = my alarm failed to go off; B = I missed the bus; and C = I was late to work. However, I might narrativise these story elements in a different order (C-A-B) by telling the story through the following narrative: “I was late to work because my alarm didn’t go off which made me miss the bus”. What is important here is the recognition that when we talk about narrativity, we are talking about sequence and time. Work on narrative comprehension has argued that “the appearance and ordering of story elements in the [narrative] discourse is critical to the process of comprehension” (Niehaus and Young 2014, 561), and that the decision to tell a story one way or another affects the ways in which we make sense of the story and the importance of the elements therein (Bordwell 1985; Branigan 1992). Therefore, network measures which are invariant under permutations of sequence are missing a very central aspect of what makes a narrative a narrative.

The importance of sequence and time to the analysis of narratives has been integral in the literature on narrative networks (e.g. Abell 2004; Bearman and Stovel 2000; Padgett 2018; Smith 2007). Work in this area has broadly aimed at mapping the temporal relations between narrative events to try to build a picture of how people construct identities and shared meanings through the assembly of historical events into narratives. However, the character networks literature has paid much less attention to these temporal considerations, and has largely continued to treat narrative texts as static networks. For example, Moretti’s *Hamlet* study (2011) defines a static tie between nodes indicating that any amount of dialogue passed between two characters, while Elson et al. (2010) and Waumans et al. (2015) define static ties based on the identification of adjacent attributed speech for two characters within the novel’s text. However, as Branigan notes, “recognizing the complexity and dynamism of a text is usually more important than assigning a final,

decisive label to it” (Branigan 1992, 8). Static character network representations are therefore unlikely to offer satisfactory models of fictional texts as they compress and flatten narratives through aggregation such that narrative time is lost in the representation⁴ (Moody et al. 2005). Even when the frequency or amount of character interaction is retained through tie weights, the temporal sequence of these interactions is lost. As narratologist Gérard Genette has argued, this elimination of time from the representation “is not only not sticking to the text, but is quite simply killing it” (Genette 1980, 35).

I argue that we should therefore think instead of narrative character networks as dynamic networks, as defined by Kontoleon et al. (2013). As with most other cases where we are interested in representing dynamic networks based on relational activity rather than fixed, stable relations, this has direct implications for our ability to capture centrality concepts using network analytical measures (Falzon et al. 2018; Moody 2002). Node-level measures based on a static network representation give us a static assessment of that node’s narrative importance. However, it does not make sense to talk about a character’s position within a narrative as a fixed quality because character positioning evolves dynamically over the course of a narrative. A character can occupy many different narrative positions throughout the course of a narrative, and the dynamics of this ought to be of interest in any analysis of that character’s narrative importance.

Principles for measuring relative narrative importance

The previous discussion allows us to specify some principles which an appropriate measure of the relative importance of nodes in a narrative character network ought to satisfy. Firstly, such a measure ought to be dynamic and based on a temporally disaggregated network representation of the narrative text. Secondly, such a measure ought to be linked to a

⁴ It should be noted that a few papers have analysed character networks from the perspective of longitudinal networks (Agarwal et al. 2012; Fischer et al 2017; Min and Park 2016; Prado et al. 2016). They analysed the networks as a series of snap-shots by aggregating character interactions within each chapter and then calculating static network statistics (including node-level measures such as degree) for each chapter. Thus, though such approaches aim to discuss narratives in terms of temporal dynamics, many of the points made here about the appropriateness of static network measures apply also to these papers as a great deal of information about the frequency and sequence of events within chapters is still lost through aggregation.

character's narrative activity, in order to satisfy the idea of narratives as a distributed field of attention between characters. When we focus on one character, we always do so at the expense of others, and so I assume that narrative activity is always an indicator of narrative importance; the more a character does something, the more attention they receive, the more character space they take up in the narrative, and the more information we have with which to "qualify" them as characters (Bal 2017). Thirdly, such a measure ought to take into account their position in the relational structure. That is, our sense of a node's relative importance (based dynamically on their narrative activity) should be dependent to some degree on the relative importance of the nodes with which they interact. David Bordwell has argued that when watching a film, one cognitive activity of the viewer is "looking for relevance, testing each event for its pertinence to the action which the film (or scene, or character action) seems to be basically setting forth" (1985, 34). Based on this, I assume that a character is more likely to be meaningfully engaging with the narrative if they are interacting with a character who has already occupied our attention than if they interact with a character we do not know yet. The third principle also ensures that such a measure will be relational, as we could easily satisfy the first two principles by tracking character activity (such as lines spoken) through time without using any relational information from the network.

An additional distinction relates to the extent to which the dynamic network has concurrent relations or not. We can distinguish between concurrency across actors and within actors. For the cases considered by Moody (2002) and Kontoleon et al. (2013), ties may be concurrent across actors in the sense that there may be overlap between ties between distinct pairs, for example two distinct pairs may be in sexual relationships or in concurrent phone calls. An example where actions are not concurrent across actors is passing the ball in a football match. From a narrative perspective, concurrency across actors, while in principle possible, does not make narrative sense. Concurrency within actors has two separate dimensions that we could call *sender exclusivity* and *receiver exclusivity*. The call network of Kontoleon et al. (2013) has both sender and receiver exclusivity in the sense that it is assumed that an actor can only be in a phone conversation with one person at a time. In Moody's (2002) network there is neither sender nor receiver exclusivity, something which is deemed crucial for disease transmission. The dialogue-based character interaction network assumes sender exclusivity but not necessarily receiver exclusivity. These narrative

considerations taken together suggest a measure with a different aim than to summarise the temporal-topological structure as in Holme and Saramäki (2012) and Kontoleon et al. (2015). In the following section I will suggest an operationalisation of these ideas based on the disaggregated list of time-ordered interactions between characters described in Chapter 3 of this thesis.

Defining a measure of narrative positioning

I propose the cumulative measure $C_{i,t}$ which represents the score C of node i at time t . The narrative activity referred to by the second principle specified in the previous section can be approximated using the directed character interaction data method developed in this thesis such that vocal interactions are the basis of our understanding of a character's relative importance within the narrative. However, in order to distinguish between speaking and being spoken-to (which, as demonstrated in Chapter 4, can reveal interesting patterns in character activity), I define two closely-related versions of the measure: the speaking measure $C_{i,t}^{out}$, which tells us the speaking score C^{out} of node i at time t and bases relative character importance on speaking activity; and the spoken-to measure $C_{i,t}^{in}$, which tells us the spoken-to score C^{in} of node i at time t and bases relative character importance on reception of dialogue. This allows for consideration that the narrative importance conveyed through speaking activity may be different from the narrative importance conveyed by being spoken to.

Definition of the speaking measure

Defining the measure at each time t ensures satisfaction of the first principle, which dictates that the measure should be calculated at a level of temporal disaggregation so that character scores are specific to each measured point of time. Using the time-ordered interaction data, time t is equivalent to a line of dialogue, with lines being temporally ordered in a sequence of positive integers, such that the first line of dialogue takes place at t_1 , the second line at t_2 , and so on.

The second principle suggests that scores should increase upon narrative activity which, in the case of the dialogue network data, is a vocal interaction. The measure should therefore be cumulative, increasing monotonically when characters speak, and the third principle suggests that the scale of this increase should depend on the character(s) being spoken to.

We can satisfy each of the three principles above by following a similar approach to that taken in Everett et al. (2018). These authors present a centrality-like measure (based on a dynamic two-mode network representation called the bi-dynamic line graph) in which nodes accumulate points through network activity, and the amount of points gained by a node in each temporally-situated activity is dependent in part on the points held by the other nodes also participating in that activity.

Following a similar logic, I propose letting speaking character i 's score increase by a fraction of the score of character j being spoken to at time t . This fraction can be defined using a weighting parameter λ , such that

$$C_{i,t}^{out} = C_{i,t-1}^{out} + C_{j,t-1}^{out}\lambda. \quad (1)$$

Thus, the amount that i 's score increases depends on the score of character j , ensuring that the measure is relational, as well as on the value of λ , allowing us to specify *how much* we want the relational aspect to contribute to our sense of i 's importance.

The measure has a flavour of how eigenvector centrality is defined on static graphs. Holme and Saramäki (2012) develop a dynamic node-level measure that respects the time-ordering of interactions explicitly to follow the logic of eigenvector centrality. However, their measure does not take into account the directionality of interactions and, because of its relation to eigenvector centrality, it is not non-decreasing, and thus does not satisfy the second principle above as some interactions can lower one's centrality score. This property could have interesting implications in other contexts where researchers may be interested in investigating how talking to the 'wrong' people could have adverse effects on your position in the dialogue network. However, this is not appropriate for narrative character networks given the earlier argument that narrative activity always increases the amount of character space taken up by a character.

The measure as specified above would be sufficient for a case where a line of dialogue has only one recipient. However, as the dialogue networks do not require receiver exclusivity, the measure may be modified to account for multiple recipients. Simply adding a fraction of each spoken-to character j 's score to i 's score would mean that lines with multiple

recipients have a larger effect on i 's score than lines with only one recipient. However, lines addressing multiple people are not inherently more narratively important than lines addressing one person, so I propose instead multiplying λ by the average score of the spoken-to characters. Thus, let $x_{ij,t}$ be a variable that can take either the value 1 or 0 to indicate whether a character j is spoken to by character i at time t . Then the total number of characters j spoken to by speaking character i is given by $\sum_j^n x_{ij,t}$, where n is the total number of nodes in the network. The sum of all scores for spoken-to characters j is given by $\sum_j^n C_{j,t-1}^{out} x_{ij,t}$.

The speaking measure can then be more generally defined as

$$C_{i,t}^{out} = C_{i,t-1}^{out} + \frac{\lambda}{\max(\sum_j^n x_{ij,t}, 1)} \sum_j^n C_{j,t-1}^{out} x_{ij,t}, \quad (2)$$

which tells us that character i 's relative importance at line t is equal to whatever i 's importance was at line $t - 1$ plus a fraction of the importance of the character(s) to whom they are speaking⁵. For characters not speaking at line t , (2) will simply imply that they retain their score from $t - 1$ as $x_{ij,t}$ will be equal to zero for these characters. Thus, so long as characters' scores at time t_0 (the starting scores before a line has been spoken) take positive nonzero values, the measure is monotonically cumulative, increasing only at moments of narrative activity as expressed through character interactions. There are a number of options for how to specify scores at t_0 , but giving all characters a score of 1 is a convenient choice for two reasons. Firstly, it allows us to assume that at the beginning of the narrative, no character has demanded any more attention than any other and thus has not occupied any more character space than any other. Secondly, the absolute values given by the measure are of less interest than the relative values such as those given by $\hat{C}_{i,t}^{out} = \frac{C_{i,t}^{out}}{\sum_i^n C_{i,t}^{out}}$ (which will be the same for any value of C_{i,t_0}^{out} shared by all characters, see Appendix B.1), so taking the first positive integer is as good a starting point as any.

⁵ The specification of $\max(\sum_j^n x_{ij,t}, 1)$ ensures that the equation cannot possibly entail division by zero for non-speaking actors.

Definition of the spoken-to measure

A similar measure can be defined in which importance is based on being spoken to rather than speaking. Defining the spoken-to measure is slightly simpler than the speaking measure as there is only ever one speaking character per line (by sender exclusivity). The spoken-to measure should let spoken-to character i 's score increase at line t by a fraction of the score of speaking character j , with this fraction being given by weighting parameter λ . In this case, let $x_{ji,t}$ be a variable taking the value 1 if node i is being spoken to by j at line t . Then, for every node i , the spoken-to measure can be defined as

$$C_{i,t}^{in} = C_{i,t-1}^{in} + \lambda \sum_j C_{j,t-1}^{in} x_{ji,t}, \quad (3)$$

which tells us that character i 's relative importance at line t is equal to whatever i 's importance was at line $t - 1$ plus a fraction of the importance of character j speaking to i at line t . Characters' scores will only increase when they are spoken to and will do so monotonically; characters not being spoken to retain their scores from $t - 1$.

Formally, it should be noted that both the spoken-to measure and the speaking measure share the property that they are not invariant under permutations of sequence. This is crucial as it allows the measure to reflect the sequence of events which, as I have already noted, is at the heart of narrative questions relating to how the story is told. This property also distinguishes the measure from standard approaches to measuring node centrality in sequences, such as looking at the cumulative weighted degree of nodes after each interaction. Consider, for example, two sequences: (1) $A \rightarrow B, B \rightarrow A, A \rightarrow B$, and (2) $A \rightarrow B, A \rightarrow B, B \rightarrow A$. Table 5.1 calculates the spoken-to measure for both sequences, assuming that A begins each sequence with score C_A and B begins each sequence with score C_B . If we cumulatively calculate weighted in-degree for (1) and (2), A will end each sequence with a score of 1, and B will end each sequence with a score of 2. However, Table 5.1 shows that both nodes end with different scores in sequences (1) and (2) using the measure developed here. Thus, our sense of each character's importance is dependent on how the action unfolds.

Table 5.1. Spoken-to scores for sequences (1) and (2).

SEQUENCE	(1)		(2)	
Node	A	B	A	B
t=0	C_A	C_B	C_A	C_B
t=1	C_A	$C_B + \lambda C_A$	C_A	$C_B + \lambda C_A$
t=2	$C_A + \lambda C_B + \lambda^2 C_A$	$C_B + \lambda C_A$	C_A	$C_B + 2\lambda C_A$
t=3	$C_A + \lambda C_B + \lambda^2 C_A$	$C_B + 2\lambda C_A + \lambda^2 C_B + \lambda^3 C_A$	$C_A + \lambda C_B + 2\lambda^2 C_A$	$C_B + 2\lambda C_A$

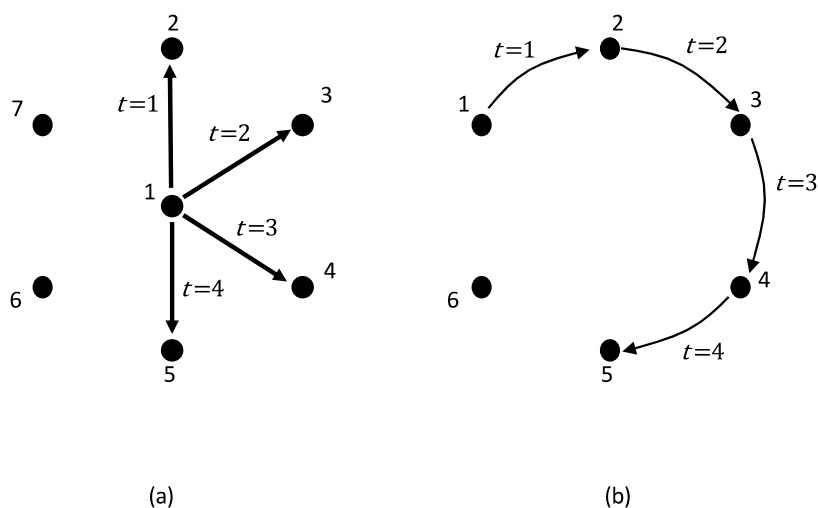
Normalisation and properties

Both spoken to and speaking measures can be normalised by the total score across actors as outlined above. Here I consider some properties of the measures which generalise to all dynamic character interaction networks, in order to illustrate how the measure works in cases where narrative focus is distributed differently. Given the dynamic structure of the narrative network, it is not trivial to derive properties of the measures. The measures can be related to the achievable maximum and minimum scores for a number of stylised dynamic networks. Although mainstream film narratives are typically more complex than the kinds of networks in the stylised graphs, exploring them helps us to understand how a key aspect of the measure, the “feedback” introduced by λ , works to either concentrate or diffuse narrative attention in the character system depending on how dialogue is distributed.

For example, we can consider two stylised dynamic graphs that have minimal narrative focus in terms of being spoken to (see Figure 5.1). One would be a “game of telephone” chain of dialogue, where each actor being spoken to then speaks to someone who has not yet been spoken to (Figure 5.1b). If the length of this chain r is less than $n - 1$, then the t^{th} actor in the chain will have a score of $\sum_{s=0}^t \lambda^s$. In other words, the character’s importance will only depend on where in the timeline they appear. Another example of minimal narrative focus would be where only one character speaks and other characters are only spoken to once, for r acts of speaking, $r \leq n - 1$ (Figure 5.1a). For this star-like dynamic graph, actors would have a score of $1 + \lambda$ if they are spoken to, and 1 otherwise. In the game of telephone there is more heterogeneity in scores as the narrative importance accumulates, but in the star-like network, the repeated speaking acts mean that the narrative importance does not accumulate as the importance gained by being spoken to is

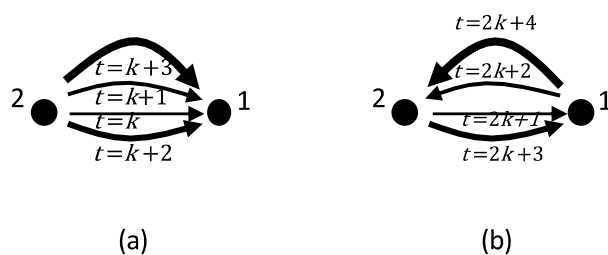
never passed on. In both of these cases, narrative focus is minimal because our sense of an actor's importance is never reinforced by an addressee responding to their speech, or by another speaker speaking to the same addressee.

Figure 5.1. Distributed speech dynamic graphs for single-speaker speech (a) and game of telephone (b).



On the other hand, we can consider two stylised dyadic dynamic networks (see Figure 5.2) which produce maximal narrative focus: one in which only one actor speaks and the other in which the actors take turns addressing each other. These can be thought of as graphs that maximise spoken-to scores as no act of speaking is wasted on addressing someone who has not been spoken to before. For the first scenario (Figure 5.2a), the score of the actor being spoken to increases linearly. For example, if nodes 1 and 2 each begin with a score of 1, then node 1's score increases by λ each time they are spoken to. Hence, the increase after r lines of dialogue is linear. For the second scenario (Figure 5.2b), the act of reinforcing each other's narrative importance means that the scores increase in a curvilinear way. For example, if nodes 1 and 2 again start with a score of 1, then after one line of dialogue, node 1's score will increase by λ . However, node 1 then returns some of this added importance in the second line of dialogue, so that node 2's score increases by $\lambda(1 + \lambda) = \lambda + \lambda^2$. In the second scenario, after a certain number of lines of dialogue, the scores of both actors overtake that of the spoken-to actor in the first scenario (this can be studied numerically by inputting different values of λ). The maximal score after r lines of dialogue can thus be thought of as an achievable maximum spoken-to score.

Figure 5.2. Dynamic graphs for dyadic asymmetric speech (a) and dyadic turn-taking (b) for 4 acts of speech.



Application: gender and narrative marginalisation in *The Force Awakens*

In this section I provide an example of how the measure can be applied to real questions about narrative texts using the substantive questions at the centre of this thesis concerning the narrative marginalisation of female characters in popular Hollywood cinema. To explore these questions about the gendered distribution of character interactions in film narratives, I use the 2015 film *Star Wars: The Force Awakens* (henceforth simply *The Force Awakens*) as an example. *The Force Awakens* serves as an interesting case study for a couple of reasons. For one, the film is the highest grossing film of all time in the United States and the fourth-highest grossing film of all time worldwide (Box Office Mojo 2019). This not only points to the immense popularity and cultural reach of the film, but also places the film clearly within the context of top-grossing “blockbuster” films addressed by existing Hollywood content analyses. Furthermore, *The Force Awakens* sparked discussion about a more inclusive and diverse direction for representation in the hugely popular and culturally impactful *Star Wars* franchise through the film’s inclusion of female and non-white characters in central active roles. Much of this discussion centred around the prominence of the character Rey (Daisy Ridley) as a key protagonist in the film. For example, following the film’s release, Rey was credited with “carrying the heavily-mantled weight of the new series” (Kermode 2015); it was proclaimed that “Rey is clearly the main character and our destined-hero for this trilogy,” that “Star Wars has a female lead,” and that “the main male character is her sidekick” (Cox 2015); there were claims that, in the film, “the male-centric universe of the original *Star Wars* gives way to a woman warrior [Rey] and a female version of Yoda [Maz Kanata]” (Roddy 2015), and that “the plot of *The Force Awakens*, in fact, revolves around [Rey’s abilities]” (Garber 2015). This not only renders it an interesting example for exploring

node positions through the lens of vocal and relational (dis)empowerment, but also provides a useful case for examining what looking at characters' positions within the overall narrative character system can tell us that focusing only on the characterisation of the individual hero (Rey) cannot.

A brief summary of the plot of the film will help contextualise and aid understanding of the discussion of the positions of the characters therein. *The Force Awakens* is the seventh feature film in the *Star Wars* franchise and centres around a conflict between the tyrannical First Order and the Resistance. The film follows Poe Dameron (Oscar Isaac), a Resistance fighter pilot, and a turncoat First Order Stormtrooper named Finn (John Boyega) as they try to deliver a droid named BB-8 to the Resistance leaders as it contains information on the whereabouts of Luke Skywalker (Mark Hamill). Finn and Dameron crash and are separated on the planet Jakku, where a scavenger named Rey discovers BB-8 and agrees to help keep it safe. Finn encounters and joins Rey as the First Order arrive and the two escape in the Millennium Falcon. Han Solo (Harrison Ford), the ship's previous owner, finds the ship and boards it, wishing to reclaim his property. Rey and Finn explain their situation to Han, who agrees to help them deliver the droid to the Resistance, which is led by Han's estranged lover Leia Organa (Carrie Fisher). In the process of delivering BB-8 to the Resistance, Rey is captured by the First Order and delivered to Kylo Ren (Adam Driver), one of the First Order's chief commanders and the runaway son of Han and Leia. While interrogating Rey, Ren discovers that she, like Ren, has control of an energy-like power known as the Force. The Resistance fighters free Rey from the First Order base, destroy its main weapon and uncover the map to Skywalker's location.

In the dialogue data for *The Force Awakens*, there are 688 lines of dialogue distributed between 31 named speaking characters. 22 percent of named speaking characters in the film are female (well below the industry benchmark of around one-in-three), while 28.1 percent of the lines are spoken by female characters, who account for 26.5 percent of the recipients of lines of dialogue.

Figures 5.3 and 5.4 plot the speaking and spoken-to measures, respectively, using the λ value of 0.01. Lower λ values allow for smoother trajectories for the characters but make the measure less sensitive, which makes it harder for characters to establish their centrality later in the film. A second consequence of this insensitivity is that the normalised score of

characters who establish a high centrality earlier in the film but do not continue to contribute vocally to the film thereafter will decline at a much slower rate, and may end up with higher scores than characters who contributed more in the latter stages of the film. Using higher λ values, on the other hand, has the opposite effect, being very sensitive to rises and falls in character centrality at each interaction, an effect that is compounded later in the film as the scores of characters are generally higher. Thus, the value of λ can be thought of as how many times a character would need to interact with another character to overtake their score. For a λ value of 0.1 on the spoken-to measure, for example, character i would receive all of j 's centrality after being spoken to ten times by j without reply. Thus, higher λ values allow characters to “steal the show” at later stages of the film, as the number of interactions required to overtake other characters is lower. Further illustration and discussion of some of these aspects of λ is provided in Appendix B.2. Setting λ at 0.01 was found to offer a balance between these sensitivity issues. In lay terms, using this λ value of 0.01 for the speaking measure means that each time a character speaks, their score becomes what it was prior to speaking plus one percent of the average score of the characters to whom they speak. For the spoken-to measure, it means that each time a character is spoken to, their score becomes what it was prior to being spoken to plus one percent of the score of the character speaking to them.

The horizontal axis in Figures 5.3 and 5.4 indicates the sequence of lines, with all characters beginning with an equal score. Key characters are labelled in the graph based on whether their normalised score at t_{max} (the end of the film) is greater than their normalised score at t_0 (the beginning of the film). In each case scores have been normalised to give relative

scores by dividing the scores by the sum of all characters' scores such that $\hat{C}_{i,t}^{out} = \frac{C_{i,t}^{out}}{\sum_i^n C_{i,t}^{out}}$.

These relative scores effectively convey the share of total narrative importance, allowing scores to both increase and decrease. This operationalises the idea of the narrative as a distribution of finite attention and neglect between characters; for the normalised speaking scores, for example, when one character speaks their share of the total narrative importance increases, while each non-speaking character's share of the total narrative importance declines slightly.

Figure 5.3. Normalised speaking measure scores in *The Force Awakens* ($\lambda = 0.01$).

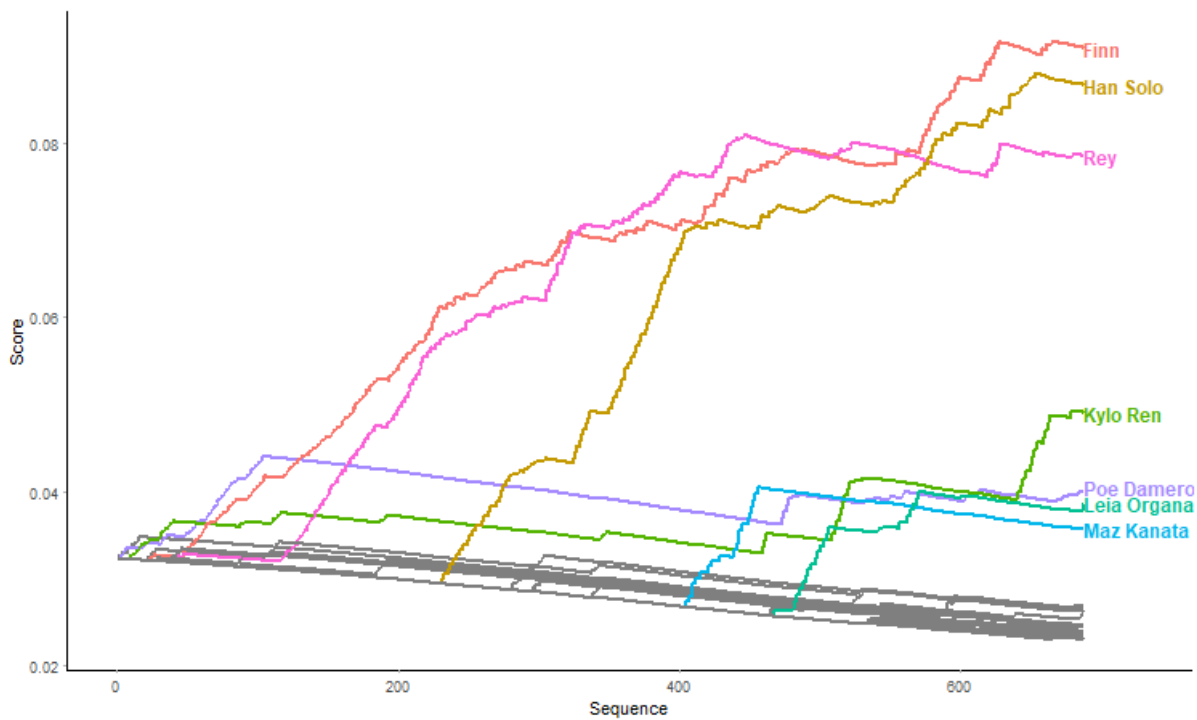
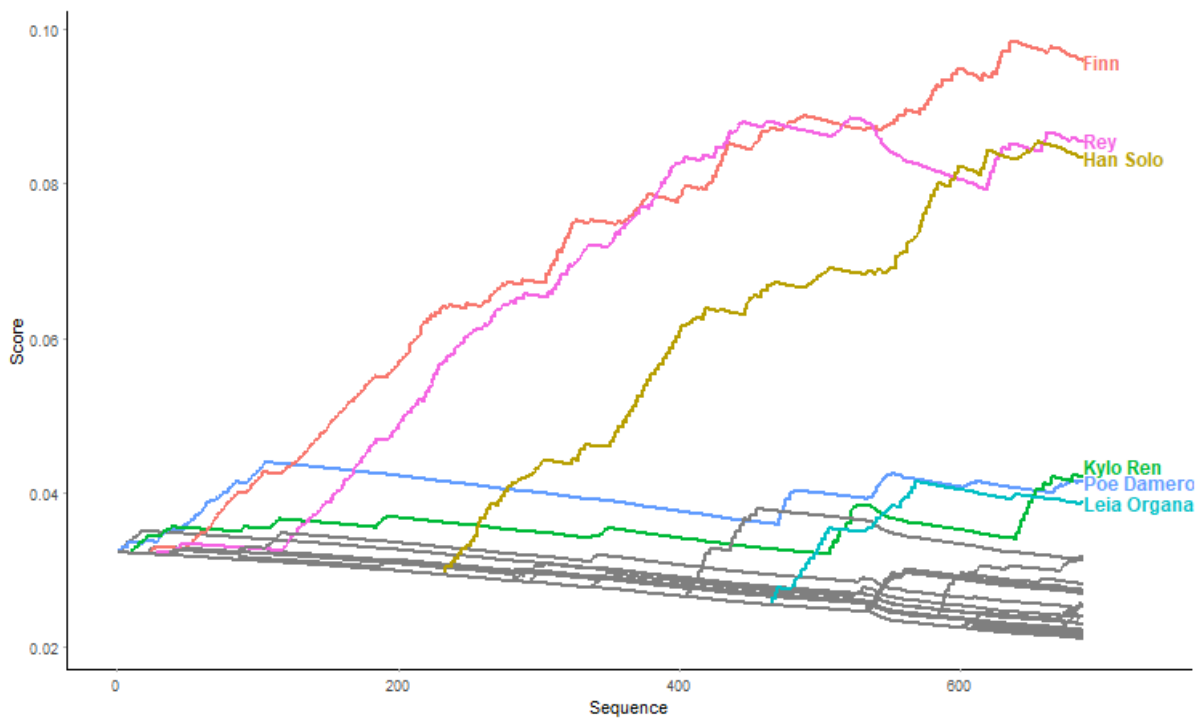


Figure 5.4. Normalised spoken-to measure scores in *The Force Awakens* ($\lambda = 0.01$).



The first thing to note from Figures 5.3 and 5.4 is that Finn spends the majority of the film (including, importantly, the final act) with the largest share of the scores on both the speaking and spoken-to measures. This is significant in its own right as Finn is a person of colour (in a historically very white franchise) and, although the focus here is on gender, this

illustrates the broader appeal of being able to characterise characters' dynamic narrative positions for scholars of social representation in fictional texts. Moreover, while it is quite clear from the graphs that Rey is central to the plot of the film, it is also clear that from the perspective of vocal activity this centrality is secondary to Finn and, in the latter part of the film, Han. This is not to downplay the significance of her character's contribution to the narrative, but it should temper some of the claims made in the critical reception to the film about her role. If Rey is the main character in *The Force Awakens*, then we might question why Rey spends so little time holding the largest share of the scores on either of the measures. Moreover, when looking across scores for all the characters in the film, we can certainly call into question the idea that the male-centricity of the *Star Wars* universe has "given way," given how few female characters separate themselves from the pack throughout the narrative. The narrative is still driven vocally by men, for the most part.

There are also several things to note regarding the dynamic nature of the measure. We can see that all characters begin at the same point on the vertical axis, due to starting with an equal score. However, as lines are spoken, characters begin to delineate their narrative activity through their verbal interactions. As the narrative evolves, different characters become more and less central. For example, Finn and Rey occupy a prominent role in the narrative throughout the film, though Rey's activity declines somewhat in the third act due to her being imprisoned during this period. Han Solo emerges after the first act and becomes increasingly central to the plot thereafter, while Leia rises in importance in the third act as she orchestrates the Resistance's fightback against the First Order. Kylo Ren remains fairly central throughout the film, even as other characters dominate the narrative activity, though Ren's centrality rises towards the end of the film as he comes face to face with several of the film's other central characters for the first time. The measure thus allows us to say something about the relative narrative positions of these characters *within the context of the dynamics of the narrative*.

Consider, for example, the position of Maz Kanata in Figure 5.3. Over the course of a few key scenes in the second act of the film, Maz (Lupita Nyong'o) becomes very important to the plot, and her share of the scores increases significantly during this period. During these scenes, Han, Finn and Rey are dependent on Maz to help them contact the Resistance, and Maz is thus pivotal to the advancement of the narrative. Not only is she vocally active during

this part of the film, but her vocal activity is with the most central characters in the film up to that point, thus rapidly increasing her relative importance to the narrative. However, her importance is defined temporally; she is important during those moments of the film, but she is not present at all in the final act of the film, and thus her share of the narrative centrality declines again. Likewise, we can see from Figures 5.3 and 5.4 that Poe (alongside Finn) is very central to the narrative in the first act of the film, as the two escape the First Order together, but that the narrative focuses more on Rey and Finn (and later Han) after this point. It would be impossible to adequately characterise these temporally-situated narrative positions using measures based on a static network representation.

These dynamic properties bring other advantages when relating this measure to more interpretive understandings of characters' positions within the narrative. Scholarship on the role of women in action cinema, for example, has discussed the ways in which women are often ejected from narratives (for example, killed or kidnapped) in order to motivate a male hero's narrative actualisation (Purse 2011; Tasker 1993). In cases where this occurs, the scores of those characters who have ceased to be active narrative contributors will no longer increase, and thus their share of the character space will decline, reflecting this narrative ejection. Indeed, when Rey is captured and imprisoned in *The Force Awakens*, we see her share of the scores decrease as her role becomes temporarily more passive while others are motivated to act. Moreover, as the (non-normalised) measure is monotonically non-decreasing, interactions towards the end of the narrative will tend to be given more weight than interactions nearer the beginning. In substantive terms, this makes sense as we are more likely to have a sense of which characters are important after we have spent more time watching the narrative unfold (Bal 2017; Frermann et al. 2018). Thus, our sense of the importance of a character entering the narrative towards the end is informed by our accumulated understanding of the relative importance of the characters they interact with, though we have less information about this earlier in the film.

Finally, there are interesting differences between the speaking scores and spoken-to scores. Han Solo and Kylo Ren hold a greater share of the narrative importance on the speaking measure than they do on the spoken-to measure. This could imply simply that these characters speak more than they are spoken to in the film. However, looking at the number of lines spoken by and spoken to the characters reveals that Han speaks 124 lines and is

spoken to 134 times, while Kylo Ren speaks 53 lines and is spoken to 48 times. From this we can infer that it is not only how much Han speaks that gives him higher speaking scores, but rather that his lines tend to also be delivered to more important characters (as defined by the measure). The measure suggests that when Han speaks, he tends to speak to other characters who speak a lot, and the characters he speaks to tend to be more important than the characters that speak to him. On the other hand, Rey's share of the narrative importance is greater when the measure is based on being spoken to than when it is based on speaking. Again, this suggests not only that Rey is spoken to a lot (Rey speaks 132 lines and is spoken to 160 times, both more than Han), but that the characters speaking to her tend to be more important than the characters she speaks to.

These differences between Han and Rey suggest two different kinds of importance – Han's tendency to speak to more important characters implies a more authoritative and teacherly role, while Rey's tendency to be spoken to by more important characters implies a more apprentice-like role. On the face of it, this makes sense in the context of the narrative, as Han is a much more senior and experienced character in the fictional universe while Rey is much more "green". However, a gendered reading of this discrepancy might problematise the relationship here between gender, seniority and vocal activity. Hollywood is known to allow older males to continue to feature prominently in narratives, while older women are underrepresented and negatively associated with seniority (Bazzini et al. 1997; Lauzen and Dozier 2005). This is likely to produce scenarios such as that between Han and Rey, where an older and more senior male figure is featured alongside a younger female figure.

However, *The Force Awakens* does also feature Leia Organa, a senior female figure who, like Han, returns to the series from the original trilogy of films and holds an important role in the plot. Leia is the general of the Resistance and the mother of the film's antagonist Kylo Ren. One might assume that this would grant her narrative centrality comparable to that of Han, who is Kylo's father and not a senior Resistance figure. However, Figures 5.3 and 5.4 show that, despite her role, Leia's vocal activity pales in comparison with the likes of Han, Finn and Rey. This chimes with scholarship on the way that postfeminist media narratives merely "take into account" feminism (McRobbie 2004) as, unlike Han, Leia's leadership comes primarily from what we know of her position in the Resistance, rather than from us actually seeing her leading the protagonists. In this regard, we might question how much has changed since the original instalment of the saga in 1977. The directed nature of the

measure thus allows for a deeper understanding of the ways in which the characters interact with each other over the course of the narrative.

Returning to Wonder Woman

With the measure defined, explained and illustrated, I now return briefly to *Wonder Woman*, to see how the measure developed here can enable us to unpack the structural similarity of the positions occupied by Steve and Diana (as discussed in Chapter 4). Figures 5.5 and 5.6 show the graphs for the normalised speaking and spoken-to measures respectively, again using a λ value of 0.01.

Figures 5.5 and 5.6 illustrate the contours of the plot of *Wonder Woman*, showing a narrative dominated by the two central characters. Although Steve and Diana occupy similar positions in the aggregated static network representations, we can see from this dynamic view that Steve overtakes Diana's speaking-based importance quickly once he enters the narrative, becoming the vocal leader of the film once the pair leave Themyscira.

Interestingly, Diana is never overtaken on the spoken-to measure, again reinforcing the idea that she is spoken to more than she speaks; while important characters continue to address Diana throughout the narrative, it is Steve who does more of the talking. We can also see from Figures 5.5 and 5.6 that although the early stages are dominated by three female characters, Diana, Hippolyta and Antiope, this period occupies a relatively brief portion of the overall narrative. Diana's mother, Queen Hippolyta (the grey line which begins to decline at around t_{180} on the horizontal axis) is very central in the opening stages of the film, being the vocal leader of this portion of the film, though her share of the attention declines shortly after as the narrative leaves Themyscira. This kind of temporally-situated importance is again difficult to summarise in a static way, but the dynamic measure allows us to place her importance within its temporal context.

Finally, I mentioned above that the measure can illustrate cases when women are ejected from the narrative or killed to motivate a male hero, a trope known as "fridging" (Simone 1999). Interestingly, *Wonder Woman* features an inversion of sorts to this trope, as Steve Trevor sacrifices himself in attempt to save others, an act which catalyses Diana's realisation of her full power and potential. Not only does Steve's ejection differ from the usual pattern of fridging in that his death is his own active choice and presented as heroic, but Figures 5.5

and 5.6 also illustrate that his removal from the action occurs so late in the narrative that it has almost no impact on his overall share of the narrative attention.

Figure 5.5. Normalised speaking measure scores in *Wonder Woman* ($\lambda = 0.01$).

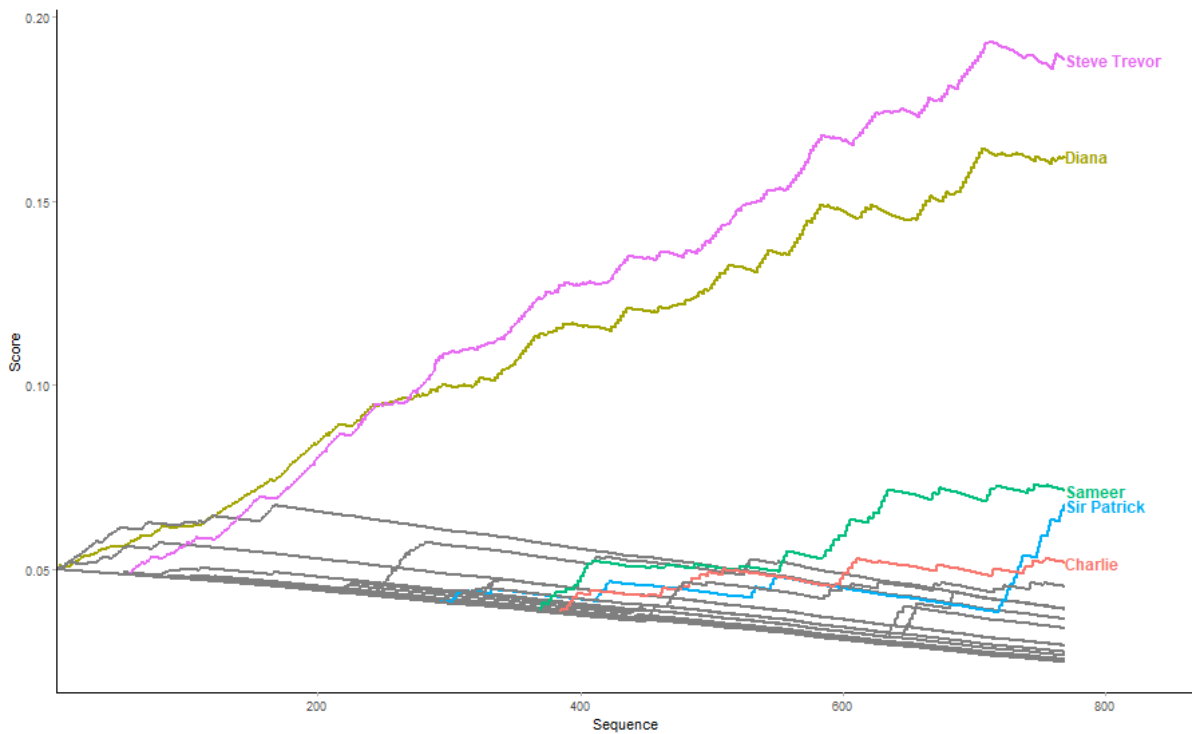
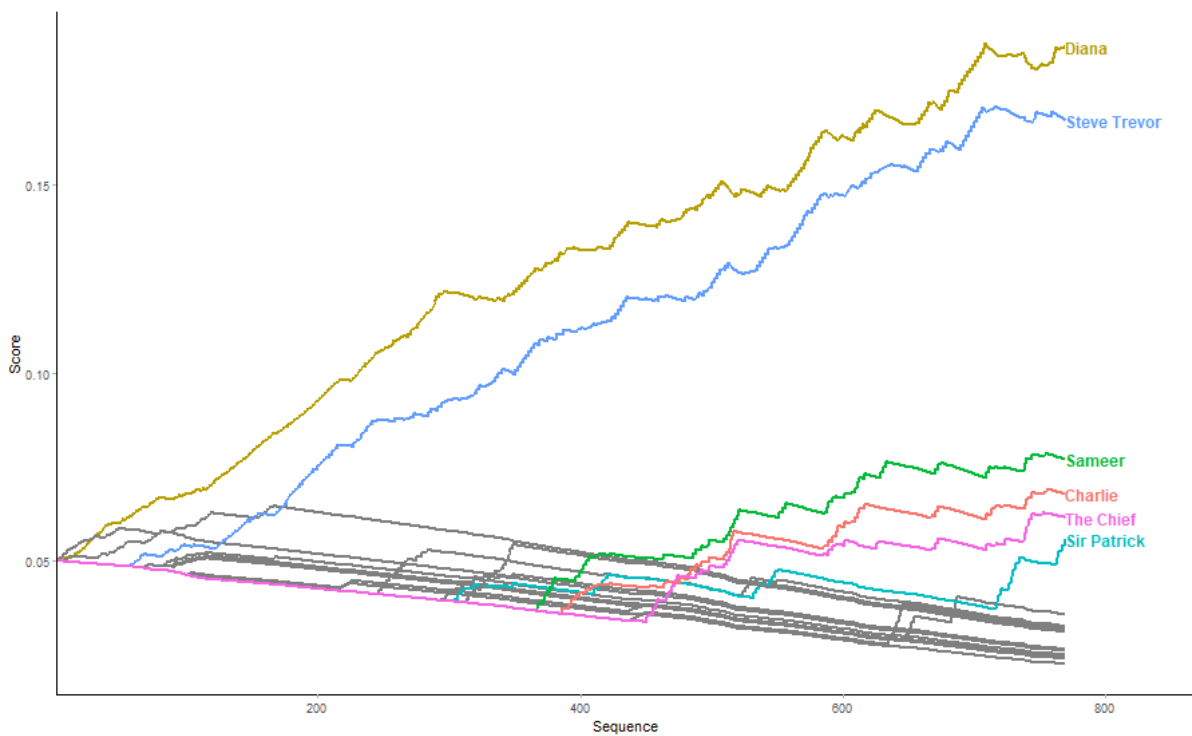


Figure 5.6. Normalised spoken-to measure scores in *Wonder Woman* ($\lambda = 0.01$).



Conclusions

In this chapter I have aimed to develop a more integrated conceptual-methodological approach to the node-level analysis of character networks based on fictional texts. Thus, the chapter contributes on two fronts: (1) a conceptual refinement of the character networks approach to analysing fictional texts, and (2) the development of a dynamic node-level measure for analysing the positions of characters within such texts. The conceptual refinement is found in the departure from the existing approach of applying off-the-shelf network analytical tools based on static network representations to narratives and instead pursuing a more bespoke approach to analysing narrative texts as dynamic networks. By doing so, we can relate the concept of centrality in the character network to a notion of narrative importance more in keeping with key ideas from the work on narratology and narrative comprehension. The measure presented in this chapter is intended as a simple example of how such an interdisciplinary approach to character network research might yield more useful, accurate and appropriate results for meaningful analysis of how characters are positioned in narratives. Through an application to *The Force Awakens*, I have shown that the dynamic node-level measure presented here can aid our understanding of the gendered dynamics in film texts in ways that existing measures cannot. Moreover, it allows us to describe the characters' evolving narrative positions within the context of the temporal dynamics of the narrative; it gives us a relational way of tracing character activity over the course of a narrative; and it can reveal relational differences in speaking and being spoken to.

It should be noted that the insistence on a dynamic network representation in this chapter does not commit one to a labour-intensive manually coded network extraction method such as the one developed in this thesis. All that is required for the principles set forth in this chapter to be satisfied is that the basic structure from which the character network is constructed is a sequential list of relational events. This kind of event list can be straightforwardly constructed using automatic approaches to network extraction as well as manual approaches, as I discuss in more detail in Chapter 6. Moreover, the utility of the approach is not limited to films and can add to existing character network studies of literary texts such as novels and plays as well as other formats such as television and in particular to dialogue-driven radio drama and podcast serials. Whatever the medium, the measure can

help to enhance readings of how characters move through narratives by way of their activity in the character system, telling us much more than can be gleaned from measures such as degree or betweenness in a static or time-windowed network representation. This is important as cultural texts engage in the reproduction of social meaning, and we need approaches that can accurately measure the important identificatory power relations at play in these texts. The stronger the conceptual links between narrative texts and the ways we represent them in data are developed, the more useful the character network approach becomes for illuminating these power relations.

The measure developed here is offered as a starting point for further thinking about how to measure the relationships between characters and narratives, and there are a number of ways in which the measure might be further developed. For one, dialogue is a crucial dimension of how film narratives are played out, but it is only one dimension. It would be useful to explore the extent to which the picture of the dynamic character system that emerges from dialogue-based network data would acquiesce with that derived from more visually-based data such as screen-sharing patterns. Moreover, the measure might be refined so that the content or type of an interaction is taken into account. It may be reasonable to assume that certain kinds of interaction carry more narrative weight. For example, talking about certain topics considered pivotal to the plot might be considered a greater signifier of the narrative importance of the characters. Alternatively, the measure might be refined so that a character can increase their score slightly if they are not directly involved in an interaction but they are the subject of that interaction. As currently defined, the measure assumes that a character's relative share of the narrative attention decreases when they are not involved in an interaction, but if characters A and B talk to each other about C, then some narrative attention is also being paid to C. Such modifications would require deeper consideration, but the measure developed here is presented as a platform on which more complex properties such as these might be developed.

Chapter 6 – Conclusions

Introduction

In this chapter, I will conclude the thesis by reflecting on what the research has achieved and what its key contributions are. In order to contextualise this discussion, it is useful to return to the overall research question posed at the beginning of the thesis:

What can the relational perspectives and tools of social network analysis add to our understanding of the narrative marginalisation of women in popular Hollywood cinema?

In short, the answer this thesis offers to the above research question is threefold: (1) character interaction networks reveal that the narrative marginalisation of the female voice in mainstream Hollywood cinema is more complex than the current empirical benchmarks based on the distribution of speaking characters; (2) analysing patterns of character interaction illustrates that our understanding of “female-led” in popular cinema requires more than simply identifying the presence of “strong female characters”, as Hollywood narratives can work to individualise and contain the empowerment of their female protagonists within relational frames; and (3) the character network approach can be a useful tool for revealing underlying patterns in how a story is told through its characters, including questions of narrative centrality, so long as we think of character networks in terms of dynamic network representations.

This chapter will explore this answer in more detail to explain the contributions of the thesis and their implications for research in this area. Reflecting the interdisciplinary nature of the project, these contributions and implications span the women and film scholarship as well as scholarship on the network-based study of narrative texts more generally. The structure of the chapter is as follows. First, I highlight the key findings of the previous chapters, setting out clearly how the steps of the thesis contribute to the building of the above answer to the overall research question. I then reflect on some of the limitations of the research in this thesis, before finally making some recommendations for future research which can further explore the implications of my research and build on the work in this thesis.

Key findings and contributions

In this section I highlight key findings from the thesis and assess the relevance and value of these findings in light of the existing literature. In the process, I provide a summary of the arguments developed over the course of the thesis and how they help us to answer the research question posed at the beginning of the thesis.

Re-statement of the research problem the thesis tackles

To contextualise the answer to the question of what the character network approach can add to our understanding of the narrative marginalisation of women in Hollywood film narratives, it is helpful to remind ourselves of where we began. In establishing the rationale for this thesis, I argued that what we know about the narrative marginalisation of women in contemporary cinema comes from three main sources: ideas from feminist film theory about the “absence, silence and marginality” (Kaplan 1983) of female discourse; empirical evidence from content analyses of top-grossing films; and the popular but scarcely-researched device known as the Bechdel test. The most influential theories in this area suggest that mainstream Hollywood narratives are told from a male perspective in which female characters exist primarily in relation to male characters. The empirical evidence we have for exploring these theories systematically is found in the consistent under-representation of females among speaking and central characters in popular Hollywood cinema, and the persistence of stereotypical representations of female characters. Popular discussions of women in film also add anecdotal evidence of narrative marginalisation by way of the Bechdel test, which suggests that many films do not feature two female characters talking about something other than a man. However, these empirical sources can offer only limited understanding of how marginalisation actually operates as they provide only surface indications of the underlying mechanisms playing out in the narrative. It is not clear how closely the gendered distribution of speaking characters corresponds to patterns of marginalisation in the underlying narrative, and we do not know much about what passing the Bechdel test actually tells us about a film.

Moreover, scholarship on post-feminism gives us reason to be cautious of discourses which link discussions of women in film to an increase in the presence of the “strong female character” in mainstream cinema. The post-feminism literature shows that ostensibly strong female characters can be narratively undermined in Hollywood narratives through a number

of representational tropes. In particular, this scholarship argues that the empowerment embodied by these characters often pays lip service to feminism while ultimately presenting a kind of empowerment which is individualised and depoliticised in ways that undermine and contain the threat posed by feminism to the status quo. By insisting on images of strong women whose strength is personal, individual and exceptional, rather than collective and political, these narratives give the illusion that feminism has “succeeded” while denying any of the real transformational politics of feminism. This suggests the need for a relational approach which re-embeds female characters into the context of the wider narrative and their positioning in the relational structures between characters therein.

The perspectives and tools of social network analysis could offer a way of empirically exploring the marginalisation of female voices within film narratives in an explicitly relational framework. Social network analysis has proved valuable in theorising and understanding social structures and the mechanisms by which they are produced in a wide range of contexts and disciplines. However, the literature assessing the usefulness of this approach for exploring fictional texts is nascent and has lacked consistency and an internal dialogue with which the approach can be developed as a tool for textual analysis. This thesis has aimed to address this issue by examining what a social network analysis-based approach to analysing film narratives can add to our understanding of the marginalisation of women in popular film.

What the thesis has added

The first contribution this thesis made was to explore the Bechdel test in more detail, to gain a clearer picture of what underlying problem it might be indicating. Analysing a large original dataset of over 6,400 films in Chapter 2 revealed that only 58% of films for which data is available feature two women talking to each other about something other than a man. The failure of so many films to pass the deliberately low bar presented by the Bechdel test suggests that the gendered dynamics that structure Hollywood narratives leave female characters with only a limited range of interactions which centre around men. Moreover, modelling the probability of passing the test given film-level attributes for this dataset demonstrated that passing the test is not arbitrary, and is associated with underlying forces acting on narrative conventions such as genre, production staff and, importantly, the gendered character structure. The original quantitative analysis of the Bechdel test data

represents a novel investigation of the film-level factors which can help us understand why so many films fail the simple criteria of the Bechdel test. Through this analysis, the thesis shows that the Bechdel test indicates deeper patterns of narrative marginalisation, and that research on this topic should focus on unpacking these underlying patterns.

The second contribution of the thesis was to develop a method and corpus for analysing these underlying patterns in a relational framework. Existing character network approaches to constructing graphs of character relations from fictional texts have tended to favour computational approaches which extract networks from text-based sources. This work has mostly focused on novels and plays, as these media already exist in machine-readable text formats which can be relatively easily read and parsed to identify character names. Where character network studies have been concerned with film, these papers have tended to favour the screenplay as a machine-readable text-based data source. However, the availability of screenplays is limited and unpatterned, and those scripts which are available frequently differ in substantial ways from the final released version of the film. Moreover, computational approaches have some success in detecting speaking characters from screenplays based on formatting conventions, but there is no way to accurately capture the spoken-to character(s), making tie definition difficult. As a solution, many studies use co-occurrence within a given boundary (such as within the same scene) as a proxy for interaction and use this to construct ties. However, this conceals many of the interesting questions about how characters actually interact. As a result, I developed a manual network extraction method which focuses on directed dialogue interactions to produce rich data containing several hundreds of lines of dialogue per film. This level and accuracy of interaction data is unprecedented in the character networks literature and offers a valuable platform for exploring questions about how female characters are marginalised in popular cinema narratives. The corpus constructed focuses on action-oriented blockbuster films and allows us to engage with key debates in the film studies literature surrounding the role of active female characters within the most popular and widely-seen films produced in contemporary Hollywood.

The thesis also develops a concise framework for exploring narrative marginalisation using the proposed character interaction network method which focuses on both the vocal and relational dimensions of the phenomenon. Drawing on ideas from feminist film theory, post-

feminism and empirical analyses of Hollywood representational trends, the thesis has aimed to unpack the marginalisation being indicated by the Bechdel test by exploring the questions of how much women speak, to whom they speak, how much they are spoken to, and through which character relations their role in the narrative is enacted. These empirical questions provide evidence which enables us to explore the type of empowerment, independence and centrality embodied by the female characters in blockbuster narratives, and whether these are rooted in isolation from other women. This framework provides a theoretical basis for the character network approach to explore the vocal and relational (dis)empowerment of women in popular Hollywood cinema.

The thesis put this framework and method into action by analysing the 2017 film *Wonder Woman* in a comparative case study with *The Hunger Games* and *Thor*. This study found that the number of named female speaking characters in *Wonder Woman* masked a narrative in which women spoke less than men and were spoken to more than they spoke. Moreover, the character interaction network revealed a very high neighbourhood overlap between lead character Diana and her sidekick/love interest Steve Trevor. In each of the other films looked at, the central character charted their own path through the narrative, leaving space in their journey not occupied by their sidekicks and romantic interests. This suggests that Diana is not independent from Steve in the *Wonder Woman* narrative, and that her journey is more closely tied to and dependent on him than the central characters in the other films. As well as this, Diana speaks fewer lines than Steve, further complicating the picture of her role and authority in the narrative. Finally, the analysis found that there were very few opportunities for a collective power-with mode of empowerment in *Wonder Woman*, and that Diana's strength was rooted more in her relationship with Steve Trevor than with the other women in the film, who figure only incidentally in the majority of the narrative. *The Hunger Games*, on the other hand, contained a number of strong female roles that play important parts in the development of the hero throughout the narrative. In this way, the study was able to use the relational data and perspectives to illustrate and uncover a number of gendered dynamics in the narrative which were largely unacknowledged in the film's critical reception. In particular, it developed a problematisation of the notion that the film is "female-led", and argued that our understanding of what this means should be deeper than just the identification of a single strong female character in a narrative.

As well as the analysis of the particularities of the films in the comparative case study, the thesis also fed this discussion back into a more general exploration of gendered patterns in the dialogue data from the full corpus. This exploration illustrated that the gendered distribution of dialogue in the films was a more complex issue than the gendered distribution of speaking characters. Comparing how dialogue is distributed in the films against industry benchmarks for the proportion of speaking characters that are female in top-grossing cinema revealed that the proportion of lines spoken by females often differs from these characters' share of the number of speaking characters. In many cases, the distribution of speaking characters actually concealed how little the female speaking characters spoke in comparison with male characters. Moreover, even in many of the ostensibly female-led films, the lion's share of the character interaction is still either spoken by men or spoken by women exclusively to men. This illustrates that narratives unfolding through women working together are rare in the blockbuster films considered in this thesis. Situating the strong female characters in the context of their positions within the narrative character system thus enabled a deeper exploration of the kinds of empowerment and independence on offer in these narratives. *Wonder Woman* and the *Tomb Raider* films present a more post-feminist model of heroism, wherein empowerment is individualised and the important bonds for the female hero are made with men. However, *The Hunger Games* film series demonstrated that female heroes can also be strong and empowered in ways which draw strength from relations with other women and do not require isolation among men in the narrative.

A further contribution of the thesis is the proposal of a dynamic measure of narrative centrality which refines the conceptual and methodological links underpinning the character network approach. Centrality is a key concept in network analysis, and offers researchers ways of measuring how important a given node is within the network structure, whether this importance is understood as authority, influence, control, popularity, exposure and so on. This concept therefore represents a natural tool with which we might utilise the network-based approach to say something about the importance of certain characters within the narrative. However, the existing character networks literature has paid little attention to the question of how to appropriately represent narratives as data. As such, the standard approach has been to apply off-the-shelf centrality measures such as degree, betweenness and closeness to static network representations and use these to make claims

about the centrality of characters. Scholarship on narratology and narrative comprehension illustrates that temporal sequence is fundamental and definitive to our understanding of narratives. Static network representations do not therefore allow us to meaningfully make claims about the position of a character with a narrative, as characters do not occupy static positions in narratives; character positioning evolves dynamically, and our understanding of it is contingent on the particular sequence of events depicted in the narrative. By engaging with the relevant scholarship, this thesis illustrated the inappropriateness of using static measures to capture a dynamic phenomenon.

In response to these challenges, I proposed a dynamic measure which traces trajectories of character interaction through time in a narrative, weighting these interactions based on the prior activity of the other characters involved in the interaction. I defined two versions of the measure, one for speaking and one for being the recipient of dialogue. Under both definitions, we begin the narrative with an equal sense of each character's relative importance to the narrative. For the speaking measure, a character's importance increases each time the character speaks, and the amount it increases by is a fraction of the importance of the characters spoken to in the interaction. For the spoken-to measure, a character's importance increases each time they are spoken to, and the amount it increases by is a fraction of the importance of the character speaking to them. This measure allows us to analyse the importance of characters within the context of the dynamics of the narrative, observing the various arcs and trajectories of activity that characters take through narrative time. Thus, despite its simplicity, it enables much more nuanced readings of how the story is told and through which characters than existing approaches to the question of centrality in character networks. This is particularly useful when thinking about the marginality of female characters as the measure enables us to engage with ideas from the literature, for example by observing whether a female character's narrative activity is secondary to that of a more central male, or whether it is cut short before the end of the film to spur the male character on to his own growth. This dynamic way of thinking about the relationship between network centrality and narrative centrality is a key contribution of this thesis' exploration of the utility of the character networks approach for exploring the narrative marginalisation of female characters in Hollywood cinema.

Implications for using character networks to explore narrative texts

One of the ways in which the development of the character network approach in this research has proved beneficial to the study of a real research problem is in the refinement of how we relate the conceptual character network to its representation in data. This refinement insists on a dynamic understanding of narrative texts, and calls for more careful consideration in selecting those tools from network analysis which would be appropriate for measuring what is happening in the narrative text. This is a key contribution of the thesis and it is worth considering in a little more depth the implications of this argument for the character network approach to studying fictional texts.

The particular data collection and representation method developed in Chapter 3 lends itself well to the argument for a dynamic network approach to character network representation. However, I wish to avoid the impression that the argument for the importance of sequence for analysing narratives excludes those approaches which rely on automated character network extraction methods, and commits one to the comparatively labour-intensive manual coding process used in this thesis. The question of how to represent the data is separate from the question of whether this process should be manual or computational. In fact, I suggest that one of the key implications of this thesis for the character network approach is that the computational approach can be an effective tool for analysing how stories are told, with some minor adjustments.

The problem with existing studies is that they have configured network extraction tools which move directly from the text to a static representation, usually either by increasing the cell values in an adjacency matrix for each interaction or by increasing the weight in an edgelist. Neither the adjacency matrix nor the weighted edgelist contain information about the temporal sequence of the events. However, those same extraction tools could just as easily store the interaction data in an event list format, with the same basic data structure as that used in this thesis. This event list can then be used to generate static weighted edge lists and adjacency matrices if desired, but if the event list step is skipped, it cannot be reverse-engineered from the static representations. For example, a screenplay parsing tool could add a row to an event list for each identified speech act, recording an event ID (incremented for each speech act, capturing the sequence), the scene ID (incremented after each scene boundary), the speaker ID (based on named entity recognition), and the

“recipients” (which would not be direct recipients, but could be those characters who also spoke within a certain textual boundary). Then, for example, the dynamic speaking centrality measure developed in this thesis could be applied directly to this data structure without the need for modification. The spoken-to measure would no longer be appropriate, given that automated measures cannot accurately identify dialogue recipients and rely on co-occurrence within textual boundaries as a proxy for interaction. However, for the speaking measure, we would still gain a sense of the vocal narrative activity of each character, with interactions weighted by the characters involved in the narrative at the time of the interaction, illustrating how attention is distributed among characters through the narrative.

In this way, existing computational approaches can be brought much more in line with the dynamic approach which I have argued for in this thesis. In the process, they can provide much more insight into how stories are told, and through which characters, than the current approaches which focus overwhelmingly on topological questions and off-the-shelf centrality measures whose conceptual suitability to analysing narrative texts is questionable. Moreover, this refinement will allow the character network approach to produce analysis which is consistent with important theories from narratology and narrative comprehension, allowing the character network approach to sit alongside and engage with more conventional approaches to textual reading of fictional narratives. In particular, the work in this thesis suggests that the strength of the character network approach lies in its ability to reveal dynamic narrative patterns, rather than in its ability to provide a static topology. This has implications beyond the use of character networks for studying film, and applies to character network approaches to studying novels, plays, radio dramas and any other fictional texts in which character interaction plays a significant role in how the narrative unfolds.

Summary

This review of the key findings of the thesis shows that the research contributes on a number of fronts. As the research is interdisciplinary, some of these contributions are substantive and some are methodological. As a result, it is difficult to synthesise the various contributions into a single, succinct answer to the research question. However, it should now be clear how these findings support the emergence of the arguments made in the

introduction to this chapter. Firstly, character interaction networks reveal that the narrative marginalisation of the female voice in mainstream Hollywood cinema is more complex than the current empirical benchmarks based on the distribution of speaking characters. Secondly, analysing patterns of character interaction illustrates that our understanding of “female-led” in popular cinema requires more than simply identifying the presence of “strong female characters”, as Hollywood narratives can work to individualise and contain the empowerment of their female protagonists within relational frames. Finally, the character network approach can be a useful tool for revealing underlying patterns in how a story is told through its characters, including questions of narrative centrality, so long as we think of character networks in terms of dynamic network representations. Together, these arguments form an answer to the question of what social network analysis can add to our understanding of the narrative marginalisation of women in popular Hollywood cinema.

Limitations of the research

In this section I discuss some of the limitations of the approach taken in this research, and suggest ways in which future research can address these limitations and build on the work conducted in this thesis. Firstly, there are a number of things which the character interaction network method developed in this thesis does not capture. For one, the restriction of the data to named speaking characters successfully reduces the amount of noise in the network, but can sometimes exclude characters who are narratively relevant. For example, there may be cases where a character’s mother is a prominent character throughout a film, and is involved in a number of character interactions, though they are never given a name besides “[character]’s mother”. Cases such as this were not an issue in the data collected in this thesis, but may occur from time to time in other films of interest. On the one hand, excluding unnamed characters such as this from the analysis highlights that the decision not to name a character is itself important when thinking about narrative marginalisation, and allows the character to be defined primarily by their relationship to another character. However, when considering through which characters the story is told, we might want to factor in that the story is being told through this character to a notable degree, even though they are not named. A solution to this may be to relax the “named” criterion when the unnamed character is involved with a certain number of character interactions.

Similarly, the criterion that lines must be “intelligible” is also successful at reducing noise, but omits characters who play relevant narrative roles but communicate in ways which do not constitute lines of dialogue. This was most clearly an issue when collecting data for *Star Wars: The Force Awakens*, as there are several characters who are important to the narrative but do not speak any intelligible lines of dialogue. For example, BB-8 and R2-D2 are “droids” which speak in bleeps and bleeps, while Chewbacca communicates through warbling. Even if an on-screen character “translates” what the character “said”, it seems inappropriate to record the bleep or warble as a line of dialogue alongside any other. As a result, these characters are omitted from the network representation. In the vast majority of cases, this is unlikely to cause any real issues, but in more fantasy-oriented settings such as this, it serves as a reminder that the decision to base the character interaction network method developed here on lines of dialogue does not always capture all character interactions.

Another example of where the focus on dialogue excludes relevant narrative discourse is in films that feature voice-over narration. From a network perspective, the narration cannot really be recorded as character interaction, as it is essentially interaction between the character and the audience. However, the voice-over plays a significant role in privileging the perspective of the narrating character, and thus cannot be ignored when considering narrative positions in cinema. A good example of this would be the film *Terminator 2: Judgement Day* (1991). While much of the action centres around John Connor (Edward Furlong) and the two “Terminator” robots (Robert Patrick and Arnold Schwarzenegger), the fact that the film is narrated by Sarah Connor (Linda Hamilton) and told from her perspective is significant when we are considering her narrative importance.

There are a number of ways these limitations can be mitigated. Firstly, as I demonstrated in the *Wonder Woman* analysis in Chapter 4, when aiming to use character networks to understand the gendered dynamics in particular texts, the goal should not be to use a character networks approach *instead of* a more typical textual reading. Rather, the character network approach can add to and complement existing ways of making sense of texts, providing a perspective and empirical data which can help unpack important aspects of the text which often go overlooked. So long as this interdisciplinary approach is adhered to, there is little danger of making critical oversights due to issues such as those described in

this section. The capacity of the character network approach for situating the interaction data within the broader narrative context is therefore in the hands of the researcher.

For example, a character network-based analysis of *Terminator 2* would need to also acknowledge the role of the voice-over narration in the gendered dynamics of the narrative, and use this to contextualise the dialogue-based reading. With this established, it would then be particularly interesting to explore how the sense of whose story is being told that is revealed through the character interaction data relates to that suggested by the voice-over narration. For example, if the narrative primarily unfolds through and follows male characters, even though the narrator is female, this itself would be an interesting finding worthy of deeper consideration and reflection. In some more extreme cases, where the relevance of dialogue to the narrative is particularly remote, the film may simply be an inappropriate choice for the kind of character interaction network method developed here. In such a case, jettisoning the dialogue network method altogether in favour of other approaches to analysing the film would make more sense. Contemporary mainstream Hollywood cinema does not provide many examples of films which would throw up this problem.

A final strategy for accounting for the limitations of a dialogue-based approach is to compare the picture of character importance that emerges from an analysis of characters' vocal activity with that which emerges from other non-dialogic data about the character's narrative prominence. For example, it would be interesting to compare how characters' vocal activity compares with the frequency of their visual depiction. If we tracked Diana's screen-time in *Wonder Woman* parallel to her speaking activity, would we see a similar pattern? Is female screen-time less densely populated with female speech than male screen-time is with male speech? Answering questions such as these would not only provide a deeper understanding of what the dialogue approach is (and is not) able to capture from the visual medium of film, but would also generate fascinating insight into the ways in which narrative activity is enacted in gendered ways. Screen-time data is not well-suited to a manual data collection approach (consider, for example, the amount of cutting between shots in a typical film), and would be more suitably captured using a computational approach making use of facial recognition algorithms. Such an approach is clearly beyond the technical and substantive scope of this project, but could certainly be productively

pursued as part of further research in this area which would drive the character networks literature forward.

Recommendations for future research

In this section I outline an agenda for future research which would build on the work in this thesis and provide further contributions to the areas of literature with which my research has engaged. These suggestions for future research are in addition to the various specific suggestions for improvement that have been made to this point.

Capturing the content of interactions

A natural extension of the approach developed in this thesis would be to incorporate the text content of the dialogue interactions into the analysis. The problem indicated by the Bechdel test is more than simply the presence of female-female interaction, but also asks whether that female-female interaction is itself centred around men. Analysing the content of the dialogue would allow us to add this dimension to our analysis of the narrative character system. In practice, this would enable us to leverage the analytical toolkit of text analysis – a set of methods and tools for analysing text-based data which is a staple of digital humanities-based approaches to studying fictional texts.

The text-based content of interactions is a by-product of computational natural language processing (NLP)-based methods for extracting networks from fictional texts. In the NLP-based approach, it is no more complex to identify the text representing the dialogue than it is to identify the text representing the speaking character, and the labour cost of adding this content to the edge data is therefore minimal. However, in the manual approach used in this thesis, the process of transcribing the dialogue content of each line is labour-intensive and inefficient. To manually add dialogue content to the interaction data would involve transcribing the lines of dialogue during data collection, which would make a tortuous and slow addition to what is already a relatively labour-intensive data collection method. As a result, a limitation of the approach in this thesis is that it does not taken into account what the characters talk about, only that they talked.

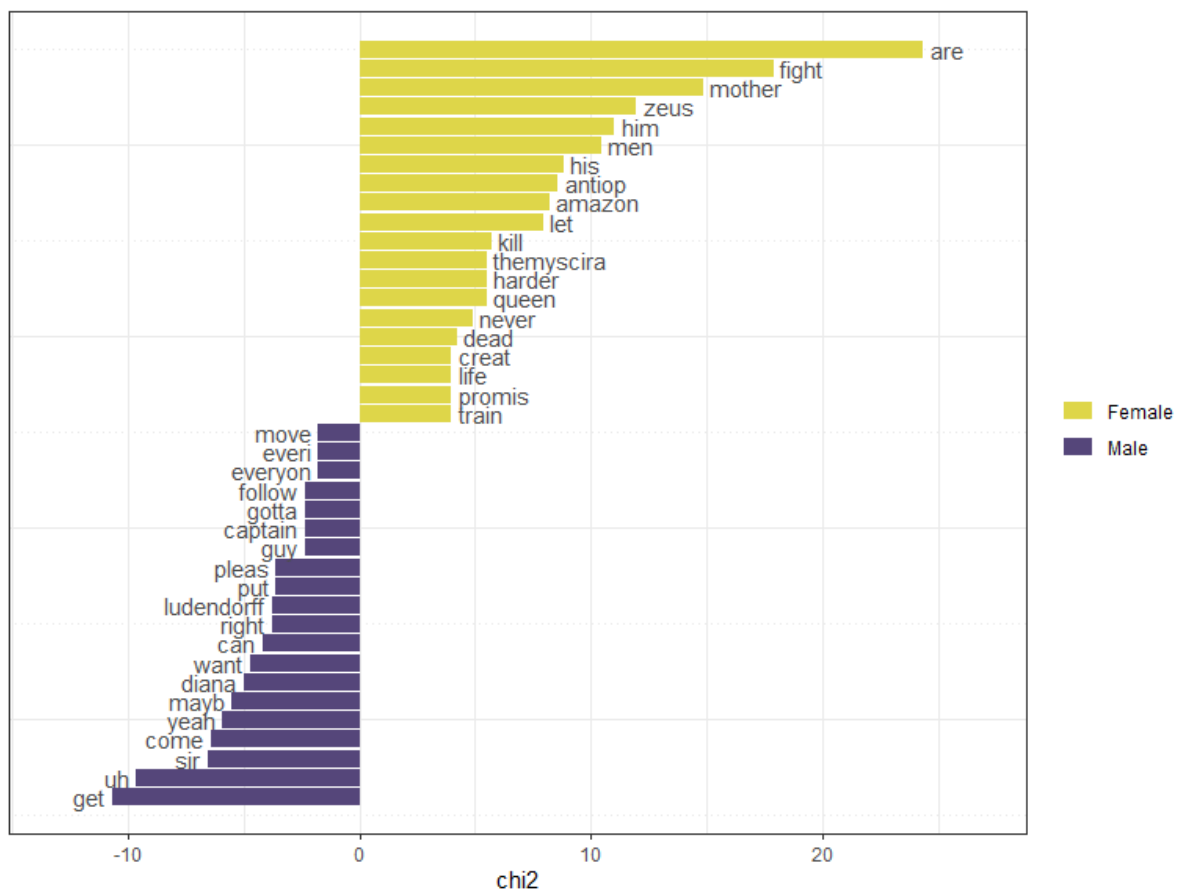
Nevertheless, to gain a sense of what the text data could add to the approach, I transcribed the lines of dialogue in *Wonder Woman*. To do this, I downloaded a subtitle file for the film, added a column to the data entry spreadsheet for the line content, re-watched the film and

copied and pasted the lines from the subtitle file to the relevant row in the spreadsheet to match them to their speaker and recipients. A number of text pre-processing steps were then applied to the data using the R software package *quanteda* (Benoit et al. 2018). First, lines were tokenised (split into individual words or ‘tokens’), and these tokens were all converted to lower case. Then, stopwords were removed from the tokens. Stopwords are words which are of no interest and are usually made up of common building block words such as ‘the’, ‘and’ etc., whose purpose is grammatical rather than semantic. The *quanteda* package uses the pre-defined Stopwords ISO library (2019) to supply these stopwords. This library, like most stopwords libraries, excludes gender pronouns (e.g. ‘he’, ‘she’) from the analysis. However, given our interest in the capacity for female characters to be defined in ways which are independent of relations with men, it would be more interesting to leave these gendered pronouns in the analysis. I therefore modified the Stopwords ISO library so that the words ‘he’, ‘him’, ‘his’, ‘himself’, ‘she’, ‘her’, ‘hers’ and ‘herself’ were all allowed to remain in the tokens for analysis. Finally, tokens were stemmed. Stemming is a process which collapses semantically related words (such as ‘run’, ‘ran’, ‘running’, ‘runs’) into a single token which captures the basic underlying concept. These tokens were then used to generate a document-feature matrix containing two documents (one containing all the male-spoken lines and one containing all the female-spoken lines) and 1,025 features (tokens), with cells indicating the number of times each token appeared in each document.

The “keyness” of tokens in each document was calculated using a chi-square test to assess which words appear in one document significantly more often than we would expect given their frequency in the other document. Figure 6.1 illustrates the 20 tokens with the highest keyness score for each gender. When added to the picture painted by the analysis in Chapter 4, the keyness scores in Figure 6.1 further complicate the idea that *Wonder Woman* is female-led. The lines spoken by women in the film are much more concerned with male characters (‘Zeus’, ‘him’, ‘men’, ‘his’ and ‘are’, which is stemmed from ‘Ares’) than those spoken by men. Moreover, the words spoken by men are much more active and commanding (‘get’, ‘come’, ‘put’, ‘move’, ‘everyone’, ‘follow’) than the words spoken by women. Thus, if the earlier analysis suggested that the film seems to be vocally led by Steve rather than Diana, this only finds further evidence in the line content data. In *Wonder Woman*, at least in the vast majority of the narrative discourse, it is men we see commanding and leading, not women.

Although this is a rudimentary analysis, only intended as a simple illustration of the kind of thing text analysis might add to the approach, it illustrates that the content of the dialogue contains useful and important information which we could use to complement the analysis in a character interaction network approach. Where possible and appropriate, character network approaches should consider extracting this content data as part of the interaction event data collection process.

Figure 6.1. Keyness scores for tokens in the dialogue spoken in *Wonder Woman* by gender of speaker.



Female-led action cinema

Many of the implications of this thesis' findings concern the roles and relational positions female action heroes occupy in female-led blockbusters. However, the discussion is limited to a small number of films. To an extent, this reflects the fact that female-led blockbusters remain relatively rare in contemporary Hollywood. However, the number is growing, and this provides a platform to explore some of the interesting questions about female-led blockbusters that have emerged as a result of the analysis in this thesis. There is therefore scope for further research which takes up the discussions started in this thesis concerning

the female-led blockbuster and considers these questions in the light of data from a more comprehensive corpus. This extended corpus could include many of the films mentioned already in this thesis, such as *Rogue One*, *Bumblebee* and *Captain Marvel*. It would also be interesting to include more films from earlier periods in the development of the female blockbuster hero, such as the *Alien* series and *Terminator 2: Judgement Day*, in order to trace patterns diachronically.

Moreover, while the Marvel Cinematic Universe films are paradigmatic examples of Hollywood blockbusters and provide a valuable corpus for thinking about questions of empowerment, character interaction and independence due to their complex interconnected nature, they do not represent all male-driven blockbuster cinema. To an extent, the Marvel films feature their own “house style” and formulas which may differ from other blockbuster films and series, and the superhero film can be seen as a distinct subgenre within action-oriented blockbuster cinema. Thus, while these films serve as a useful comparison point for *Wonder Woman*, it would be informative to develop a more well-rounded model of narrative norms in male-driven blockbuster films to contextualise a broader analysis of patterns in female-led films. An extended corpus ought therefore to include other non-superhero-based blockbusters, such as those from the immensely popular and successful *Fast and the Furious* and *Jurassic World* series.

Key questions that this research could investigate include: What space is there in these female-led films for female discourse to exist outside of the individual strong female character and her relationships with men? What kind of empowerment is offered by the narrative positioning of the strong female character? Are there many opportunities in these narratives for collective models of empowerment? Does homosociality play out in gendered ways in blockbuster narratives? From which kinds of relationships do strong female characters draw their strength? To what extent do female blockbuster leads mirror traditional strong male heroes? As noted earlier in this thesis, scholarship on women in action cinema has been slow to respond to recent developments wherein contemporary female characters often elude the terms of earlier theories concerning musculinity and action babe cinema. Research aimed at answering the above questions could offer a different perspective on female-led blockbuster cinema which would help illuminate the

narrative patterns which characterise these contemporary female action heroes and how they fit into the blockbuster landscape.

Scenes as foci

In the various character interaction networks presented in the thesis so far, it has been clear that characters tend to be clustered into groups of frequent scene-sharing. When interactions are the units of analysis, we must consider the constraints on interaction in order to understand how patterns of interaction form. In film networks, scene-sharing is a very clear constraint on the interaction of characters. If two characters do not share a scene together, they cannot interact with each other. Similarly, the more two characters share a scene together, the more probable it seems that they will interact. From the perspective of understanding gendered patterns of interaction, this is a level of disaggregated complexity that the Bechdel test is utterly unable to capture. If two female characters do not speak to each other because they are never in the same room together, this seems quite different from a case where two characters never speak to each other even though they share the same room several times throughout a film. Thus, the decision of the filmmaker to put two female characters in the same scene becomes an important question when analysing the gendered distribution of interactions.

In network terms, we might consider Scott Feld's notion of "foci" here (1981). Feld argues that social contexts are made up of individuals and foci, where individuals are related to certain foci and to other individuals. A focus, in this sense, is some kind of constraining factor which structures the interactions of individuals who may or may not be related to it. As such, the activities of a group "are organized by a particular focus to the extent that two individuals who share that focus are more likely to share joint activities with each other than two individuals who do not have that focus in common" (Feld 1981, 1016). From this perspective, scenes can be considered a kind of focus in film networks in that they are likely to organise the distribution of ties based on scene-sharing patterns among characters. Characters who share the same scene are of course more likely to share joint activities with each other in a film narrative than characters who do not. Thus, film dialogue and all other interactions between characters must be considered as constrained by scene-sharing.

Future character network-based research should aim to build understanding of the extent to which scenes actually do organise interaction as well as the role of gender within these

processes, as “once one understands the focused organization, one can predict that transivities will occur around the foci” (Feld, 1981: 1034). Understanding these transivities is one way in which a network-based approach can move beyond the simplicity of the Bechdel test and offer a richer understanding of the how character interactions are structured in film narratives. Moreover, addressing the extent to which scene-sharing organises interaction would help clarify the difference between the information gleaned from computational co-occurrence networks and manually extracted direct interaction networks.

Character networks and adaptation

The research in this thesis explores the underlying patterns which lead to the marginalisation of female characters in popular Hollywood cinema. As discussed in Chapter 2, reviewing the empirical evidence on representation in Hollywood from research such as the Hollywood Diversity Report reveals not only widespread patterns of marginalisation, but also remarkable consistency in the figures year-on-year. This suggests that narrative patterns which lead to marginalisation are part of the standardised formula of Hollywood screenplays. Thus, a key task in understanding and unpacking these patterns is untangling the particular effects of the Hollywood system on the problem from the broader cultural biases at play. How much of the patterns revealed in this thesis are simply a product of the particular restrictions on story diversity in the Hollywood production system? Or does the problem begin with the source material before it even reaches Hollywood?

One of the ways we can begin to explore these questions is by comparing character networks from stories which have been adapted from one medium to another. Almost all of the films looked at in this thesis have been adapted from stories originally told in other media (including video games, comic book series and novels), and this is a trend which defines the current blockbuster era. Looking at what happens to character networks as they pass through the Hollywood production machinery would offer a revealing insight into when and where in the production process the problem begins. For example, how does the character interaction network for the *Hunger Games* film compare with that of the novel of the same name from which it is adapted? Comparing how the same basic story material is told in two different media would allow us to focus on the particular narrative forces which come to bear on stories when they are put through the Hollywood blockbuster production

process. This kind of study has not yet been conducted in the character networks literature, and would represent another substantial contribution of the character network approach to the study of narrative patterns in film texts.

Exploring the data using relational event models

In Chapter 5 I argued for the need to treat character networks as dynamic networks in order for the approach to be useful in understanding how a narrative unfolds. A logical next step of this argument is to explore a relational event model-based approach to analysing the character interaction data (Butts 2008). Here I provide a basic outline of this model for context; for a more detailed explanation, see Butts (2008). The relational event model offers a modelling framework for analysing sequences of “relational events” (or actions). These events are defined by the tuple $\{i, j, k, t\}$, where i is the sender of the event, j is the receiver of the event, k is the type of the event, and t is the time of the event (defined either in absolute terms, as with timestamped data, or in sequential terms for ordered data). The model uses this data structure to estimate the likelihood of a given event, conditional on the realised history of previous events and covariates of the event sender and receiver. Within this framework, a range of interactional mechanisms can be parameterised for explaining the occurrence of events, such as patterns of reciprocity and conversational turn-taking (see Gibson 2008), recency effects, and preferential attachment (i.e. the tendency to choose to interact with those who have been involved with the most interactions).

The relational event model can build on the approach developed here by allowing us to consider the factors which are associated with dynamic patterns of character interaction. The centrality measure developed in this thesis takes individual characters as the unit of analysis, allowing us to map the amount of relational activity for each character over time as a share of the finite distribution of narrative attention. However, many of the questions raised in this thesis suggest patterns that cannot be captured by individual measures alone. For example, the notion that female characters tend to be defined by their relationships to male characters, while relationships with other female characters are narratively marginalised, suggests that the unit of analysis should be pairs of characters rather than individual characters. Unitising the pair of characters allows us to ask questions about whether male-male and male-female interactions are more likely to occur than female-

female interactions. In principle, the relational event framework provides a suitable avenue for modelling the data to explore questions such as these.

In practice, however, there are issues involved in implementing such models for the film dialogue data, several of which intersect with the question of scenes as foci discussed above. The relational event model is estimated for each event conditional on the history of already actualised events. Thus, it takes as its input data a sequence of relational events, assumed to be a single event history. This leads to an issue related to the question of scene boundaries. If we control for local mechanisms such as reciprocity and turn-taking dynamics in the model, these parameters will treat every action as following from the previous action in the overall sequence, and assume that each actor has full knowledge of the previous events (Butts 2008). However, two actions which straddle a scene boundary may have nothing to do with each other; the first speaking character in a new scene may not have been present for the prior interaction, and may have no knowledge of that interaction. What may look like an unlikely turn-taking pattern to the model may in fact simply be a change in scene. Given that the average number of scenes containing dialogue per film in the 27 films looked at in this thesis is 59, this is not a trivial consideration. One option for dealing with this issue is to treat each scene as a distinct event sequence to be modelled. However, many scenes are short, and would not provide enough data for reliable parameter estimation.

Another possible solution to this problem is offered by DuBois et al. (2012), who propose a hierarchical approach to modelling relational event sequences. Their approach allows events in one sequence to be modelled in a way which also draws on information from other sequences assumed to be part of the same collection of sequences. Rather than simply modelling each sequence separately, this approach therefore assumes that “parameters are drawn from a common distribution and can thus leverage information from the other sequences when few data are present” (DuBois et al. 2012, 2). This hierarchical framework may be appropriate for modelling character interaction data, as it would allow us to define scenes as individual event sequences nested within the overarching narrative. Events in one scene could then be estimated using information from other scenes. So long as information about the temporal dependencies between scenes is preserved, this would provide a suitable approach to modelling character interaction in film narratives. Additional

research is required to explore this possibility further, as options for implementation of such a model are currently unclear. Future research should explore the possibilities for overcoming the practical issues in implementing relational event models for narrative data described here, in order to determine what these models can add to the analytical toolkit of a character interaction network-based approach to narrative texts.

Conclusion

This thesis aimed to explore what using a social network analysis-based approach could add to our understanding of the narrative marginalisation of female characters in popular cinema. Through analysis of character interaction networks in a number of blockbuster films, the research has shown that a network-based approach can add valuable insights and evidence to our understanding of how women are represented in mainstream Hollywood narratives. In particular, it can reveal patterns of interaction which provide a much deeper level of understanding of the extent to which film narratives are enacted through the female voice than existing empirical analyses can offer. The research also illustrates the value of situating strong female characters in the context of character networks, as this allows us to explore key questions about through which kinds of relationships their empowerment is enacted in the narrative. Moreover, the research moves the increasingly popular character network approach forward by developing closer links between the conceptual and methodological foundations of how network-based methods can be used to analyse narrative texts. These contributions have a number of implications for how we think about the strong female character in popular Hollywood cinema, and how social network analysis can be used to explore this and other topics of substantive interest to scholars of fictional texts in a range of media. The research provides an exciting platform on which further work can be done to explore both of these avenues, opening up questions about the kinds of narrative positions occupied by the recent wave of female blockbuster heroes as well as the potential of this methodological approach to unlock deeper insights into the mechanisms that structure characters' placement within narrative texts.

Appendix

A. Reproducibility

A.1. Project repository and data

In the interest of reproducibility, this thesis is accompanied by a project repository which contains data and interactive workbooks with code for reproducing the analyses. This repository is a work-in-progress and the most up-to-date version can be found at <https://github.com/pj398/between-the-lines/>.

All character interaction data collected in this thesis are available as an R package called *movienetData*. This can be found at <https://github.com/pj398/movienetData/>.

A.2. An example: Disney's Frozen

As an example of what the data collected using the data collection process detailed in Chapter 3 looks like, I include in this appendix a snippet (the first 50 lines) of the raw data for the 2013 film *Frozen*. The full data can be accessed either through the repository or data package discussed in A.1.

Figure A.1. Node list for *Frozen* dialogue data.

characterID	character.name	charfem
1	Anna	1
2	Elsa	1
3	Olaf	0
4	King	0
5	Queen	1
6	Kristoff	0
7	Bulda	1
8	Grand Pabbie	0
9	Kai	0
10	Hans	0
11	Duke	0
12	Oaken	0
13	Gerda	1
14	Marshmallow	0

Figure A.2. Event list (rows 1-50) for *Frozen* dialogue data.

eventID	sceneID	speakerID	Anna (1)	Elsa (2)	Olaf (3)	King (4)	Queen (5)	Kristoff (6)	Bulda (8)	Grand Pabbie (9)	Kai (10)	Hans (11)	Duke (12)	Oaken (13)	Gerda (14)	Marshmallow (15)
1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
2	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
3	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
9	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
10	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12	3	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
13	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
14	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
15	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
16	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
17	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
18	3	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0
19	3	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0
20	3	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0
21	3	2	1	0	0	1	1	0	0	0	0	0	0	0	0	0
22	3	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0
23	3	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0
24	5	7	0	0	0	0	0	1	0	0	0	0	0	0	0	0
25	5	8	0	0	0	1	0	0	0	0	0	0	0	0	0	0
26	5	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0
27	5	8	0	0	0	1	1	0	0	0	0	0	0	0	0	0
28	5	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0
29	5	8	0	0	0	1	1	0	0	0	0	0	0	0	0	0
30	5	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0
31	5	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0
32	5	8	0	1	0	0	0	0	0	0	0	0	0	0	0	0
33	5	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0
34	6	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
35	6	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
36	6	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
37	6	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0
38	6	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0
39	6	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
40	7	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
41	8	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
42	8	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0
43	8	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
44	9	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
45	11	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0
46	11	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
47	11	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0
48	11	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
49	11	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
50	11	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0

B. Notes on the proposed dynamic centrality measure

B.1. Scale invariance

The relative measure is invariant to multiplication of initial values $\{C_{i0}\}$, when $C_{i0} = c$ for all $i = 1, \dots, n$. For spoken to, this is immediately obvious through observing that $C_{it}^* = aC_{it}$ implies $C_{it+1}^* = aC_{it+1}$, given through direct calculation

$$C_{it+1}^* = C_{it}^* + \lambda \sum_{j \neq i} C_{jt}^* x_{ji,t} = aC_{it} + \lambda \sum_{j \neq i} aC_{jt} x_{ji,t} = aC_{it+1},$$

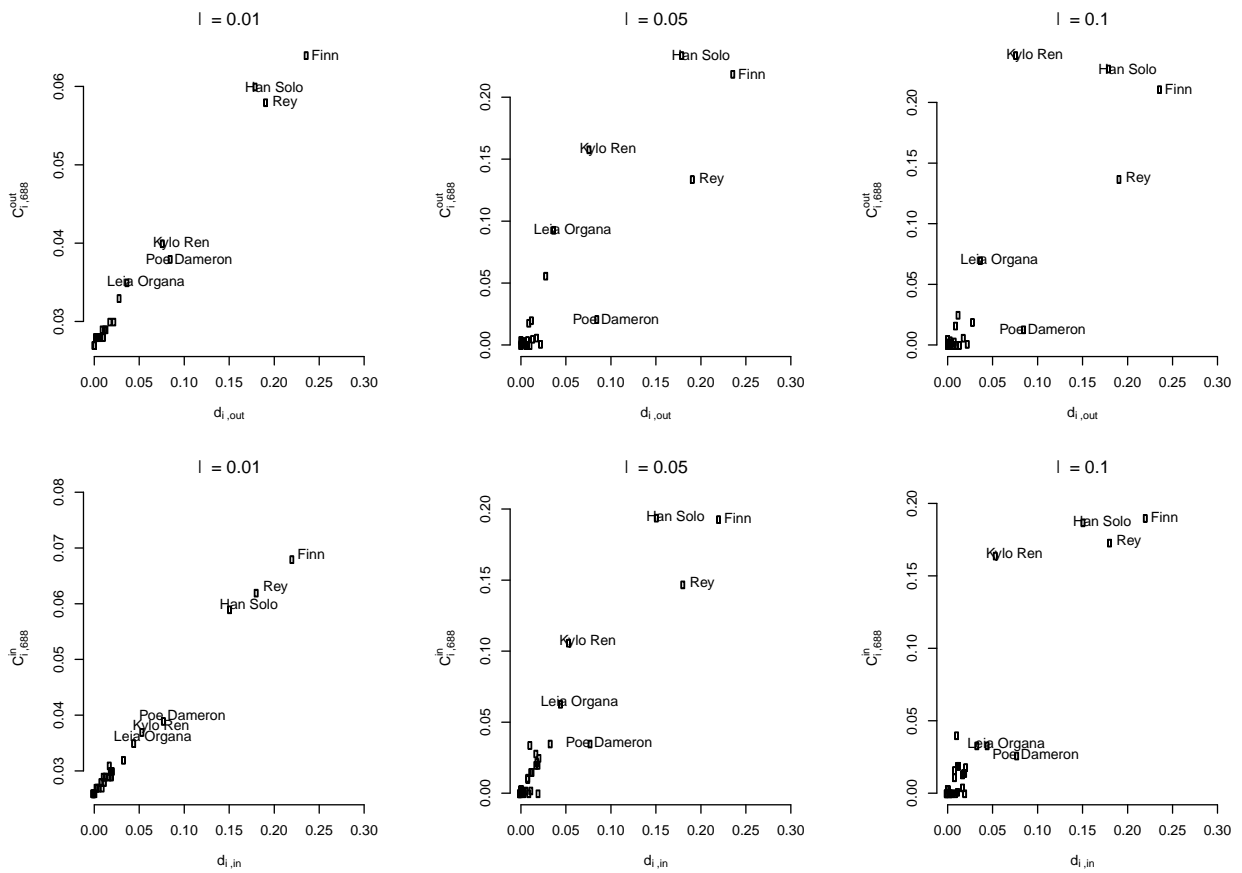
and $C_{i0}^* = aC_{i0}$. Consequently $C_{it}^*/C_{jt}^* = C_{it}/C_{jt}$, for all $i, j \in \{1, \dots, n\}$ and it does not matter what initial value $c > 0$ is used. The same relation holds trivially for speaking.

B.2. Choice of λ in *The Force Awakens*

The parameter λ regulates the amount of feedback in the measure. To an extent, all parametric centrality measures (e.g. Bonacich and Lloyd 2001; Bonacich and Lu 2012; Katz 1953; Opsahl et al. 2010; Taylor et al. 2017) involve a degree of arbitrariness in how to set parameter values. The goal for the present measure is simplicity, with the effect of the parameter on output values being both clear and sensible. Like other parametric measures such as those cited above, a value has to be chosen. There is, however, no obvious or best value to choose. Thus, I provide in this section some more discussion of λ , explaining why I chose the value of 0.01 as a useful value for illustrating the measure in Chapter 5.

As noted in Chapter 5, for *The Force Awakens*, increasing λ amplifies dialogue with highly central actors, especially in later stages of the narrative. Figure B.1 provides a comparison of the final (normalised) scores given by the measures against total number of lines spoken and received.

Figure B.1. Speaking and spoken-to measures against number of lines spoken and received for $\lambda = 0.01, 0.05, \text{ and } 0.1$.



The difference between the number of lines of dialogue gets larger as λ increases. Figure B.2. maps the trajectory of the measures when increasing from $\lambda = 0.01$ to $\lambda = 0.2$.

The final scores for the characters in *The Force Awakens* are provided as a function of λ in Figure B.3.

Figure B.2. Changes in measures as λ is increased.

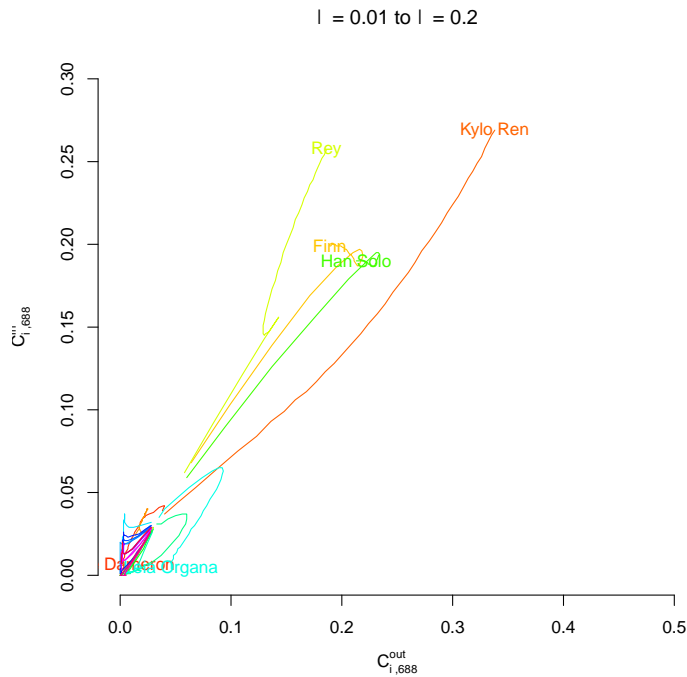


Figure B.3. Speaking and spoken to measures against value of λ (on log scale). Reference lines indicate (from left to right) values of 0.01, 0.03 and 0.04.

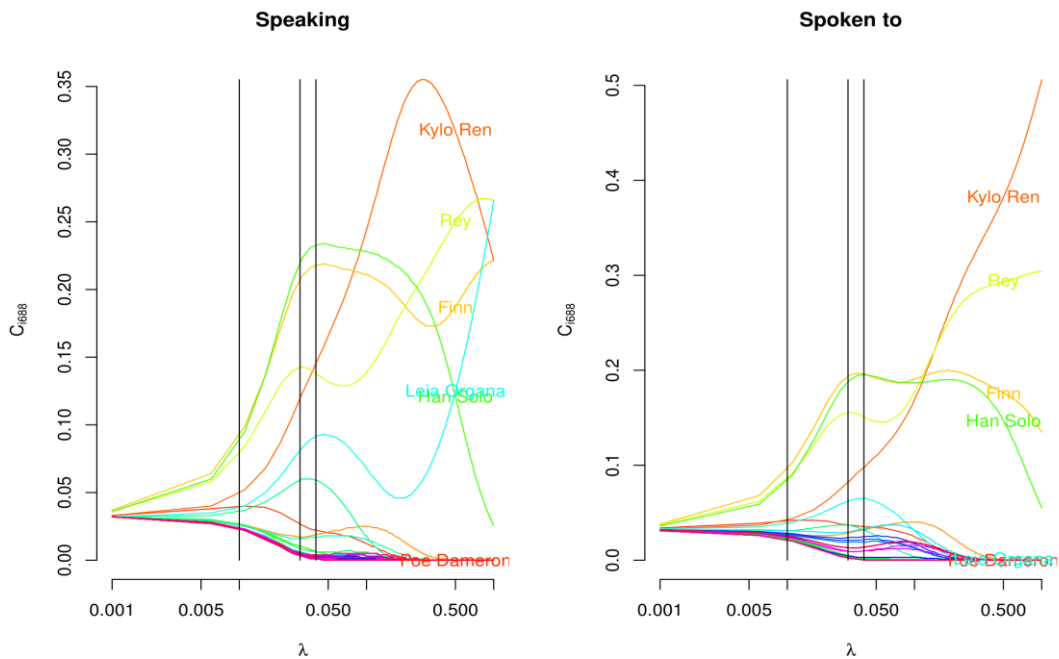
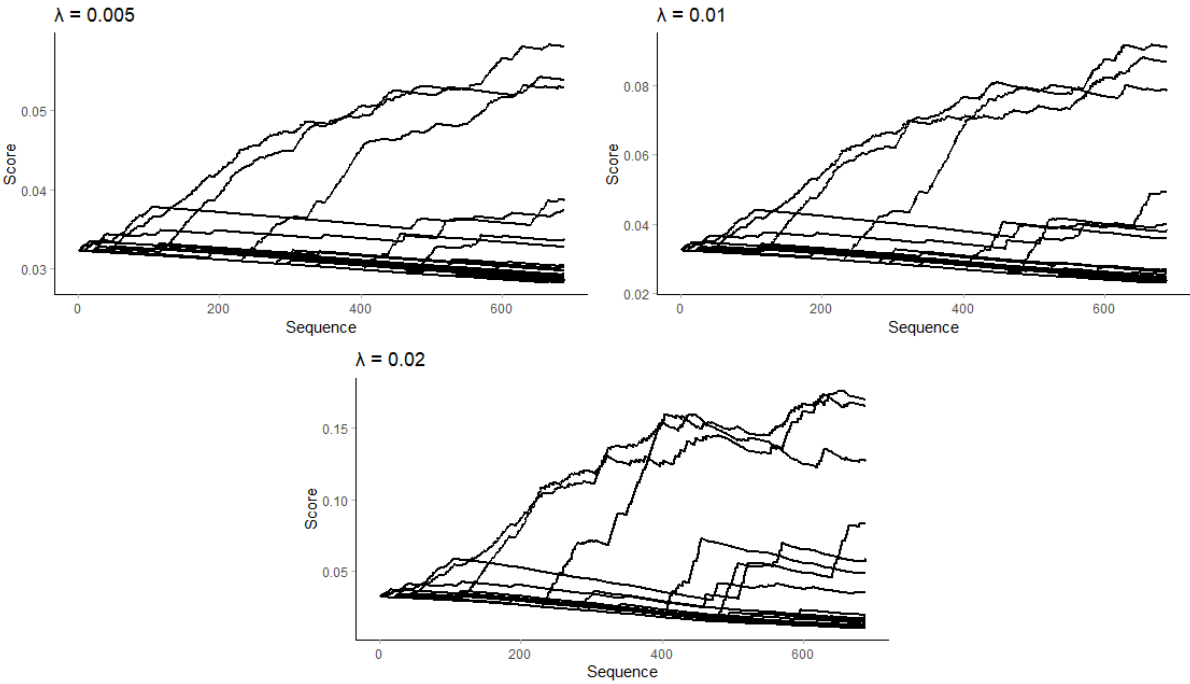


Figure B.3 shows that the range of output values for the measure remains fairly stable for changes in λ values at the lower end of the scale. The picture of relative character importance painted by the measure does not begin to change drastically until λ begins to

reach values of around 0.03-0.04 (the area between the rightmost two reference lines in Figure B.3). At this point, increasing λ causes instability in the narrative, as illustrated by crossing lines. Thus, for λ values beyond this point, the scores become dominated by those characters involved in interactions at the conclusion of the film. This illustrates the “show-stealing” quality of higher λ values discussed in Chapter 5, most clearly seen in Kylo Ren’s rapid rise in relative centrality at higher λ values, and Han Solo’s corresponding decline. When identifying a useful λ value for the illustrations in Chapter 5, the range of λ values was narrowed to the area where the output values first begin to spread out in Figure B.3 (the area between 0.005 and 0.02) in order to preserve the importance of earlier narrative events, while still allowing for events to gain importance as the narrative progresses.

Character trajectories were then plotted using a selection of λ values in this range, as shown in Figure B.4. These plots were used to more closely consider the sensitivity of the measure in light of the goals of simplicity and clarity. As discussed in Chapter 5, the λ value of 0.01 was chosen as a middle-ground between the insensitivity of 0.005 and the sensitivity of 0.02. Moreover, the trajectories mapped using the value of 0.01 appear to correspond with a sensible reading of how the narrative unfolds. This is not to say that 0.01 will be a useful value in all cases; for example, narratives with vastly fewer or more events may require more fine-tuning to ensure correspondence of output values to the narrative. However, for the present purposes, 0.01 was selected as a useful illustrative value.

Figure B.4. Narrowing λ values down between 0.005 and 0.02.



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