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How a Literary Archive and Distant Reading Can Give Disabled Characters the Attention They

Have Been Denied

by

Barbara Claire Shea

Under the Direction of Edward Christie, PhD

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

Master of Arts

in the College of Arts and Sciences

Georgia State University

2022

ABSTRACT

I have created a digital archive documenting literary works that feature disabled characters. Using distant reading within this digital archive provides insight into the representation of disability in literature, aids in creating a disability literary canon, and prioritizes disability within the realm of critical literary studies. Despite the widening of canon and the increasing visibility of disability studies in the academy, there needs to be an archive that features works with disabled characters. Literary visualizations created through distant reading provide a new way to read texts. My thesis, "Combatting Disability Erasure in Literary Studies: How a Literary Archive and Distant Reading Can Give Disabled Characters the Attention They Have Been Denied," will explore how distant reading would add an unprecedented dimension to a disability literary archive. Disabled characters have been present in prominent and now out-of-print literature for generations, but their presence has been cast to the periphery of storylines.

INDEX WORDS: Disability literature, Disability studies, Distant reading, Literary visualizations, Disability literary canon

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by

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Georgia State University

December 2022

DEDICATION

To my wonderful partner, Gabriel, and my lovely best friend, Clarice. Thank you for reading every paper, picking me up from late night classes, and supporting me as I navigated going back to school. And to past Claire, I am proud of you.

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1 LITERATURE REVIEW: DISABILITY STUDIES

Canonical American authors such as Irving, Cooper, Poe, Hawthorne, and Melville "illustrate the inflexibility of the canonical structures that overlooked numerous writers in academic conversations about our literary past" (Csicsila 54). These authors have served as the basis for American literary anthologies for decades, but- "[T]he habit of relying on the same familiar list of authors and texts...no doubt resulted in the omission of numerous deserving writers from academic literary textbooks earlier in the century" (Csicsila 167). Though it is impossible to turn back time and change the creation of American literature and the authors regarded as canonical, it is possible, through the establishment of a digital disability literary archive, to shed light on the representation of disability over the last century. An archive would serve to demonstrate trends of representation, allow for possibilities to emerge for a historical disability canon, and spawn an overall increase in disability anthologies from the late nineteenth and early twentieth centuries.

Historical reclamation is not a novel idea and has been proven effective in the realm of Puerto Rican literature, where "Puerto Rican intellectuals of the 1930s generation used literature as an anti-colonial shield against US imperialism" (González-Conty 26). Nilita Vientós Gastón, a Puerto Rican lawyer served as editor-in-chief of *Asomante*, a literary journal and "one of the island's most important anti-colonial projects" (González-Conty 26). Although deemed a literary journal, *Asomante* covered a plethora of documents and written work, which "...included poems, short stories, plays, chapters of novels, literary essays, philosophical essays, translations of French and English poets, letters to the editor, and historical documents... Vientós Gastón's first canon-formation tactic was claiming a Hispanic heritage" (González-Conty 32-33). This process of creating a historical and quarterly anthology allowed Puerto Rican scholars from a variety of

backgrounds to come together and reclaim their history as their own rather than one of a colonizer. It's clear that "Puerto Rican literature could only persevere in the future by consolidating its own past as decidedly Puerto Rican" (González-Conty 39) and just like Puerto Rican literature, disability literature has the potential to reclaim its past and establish a literary history of its own.

Disability literary anthologies have been appearing more frequently during the past two decades, as a result of the rise of Disability Studies during the 1980s and 1990s. Most disability literary anthologies spotlight contemporary literature as opposed to literature of the past.

Through the use of a disability literary archive, historical anthologies featuring disability literary works could be used to guide the representation of disability in literature today. "Just as societal norms become embodied within the standardized practices of archives, so too do the definitions and understandings of people produced by archives become ingrained in society" (Brilmyer 102). In order to understand and create space for disability in literature, we must create a space that solely represents the disability experience and worldview.

Ann Dowker, an experimental psychology lecturer at the University of Oxford, observes an interesting phenomenon throughout her research, "...the portrayal of disabled characters as saintly invalids, or as headstrong girls being tamed through the discipline of suffering, seems more prevalent in the surviving books than in those long out of print" (4). Dowker acknowledges not only the presence of characters with disabilities, but also trends that she observed when looking at literature over the course of the nineteenth and early twentieth centuries. One particular point Dowker makes is that perhaps new trends would emerge were we to observe and analyze works of literature that were less popular and now out-of-print. Although a seemingly

daunting task, with the help of a comprehensive disability literary archive as well as distant reading, these trends and patterns can in fact emerge.

Stefan Jänicke, Greta Franzini, Muhammad Faisal Cheema, and Gerik Scheuermann, on behalf of the University of Göttingen and Leipzig University, explain that the goal of distant reading is to "generate an abstract view by shifting from observing textual content to visualizing global features of a single or of multiple text(s)" (2). Through the use of a corpus, or a group of texts, various computer programs can analyze those texts and find patterns and trends. This approach differs from the more traditional approach of close reading, which analyzes a single text "without dissolving its structure" (Jänicke et al. 2). The marriage of a disability literary archive and the implementation of distant reading within the archive would provide unprecedented opportunities for literary data analysis. The goal of distant reading is to first identify trends, then hone in on specific works. This strategy, when paired with a disability archive, could lead to the creation of a historical disability literary canon.

Looking at the representation of disability in literature, numerous trends emerge from the research. The first of which is the mere inclusion of disability in literature, "...disabled people have been included... literally hundreds of disabled characters appear in literature" (Beauchamp et al.11). If disability has been present in literature, with characters illustrating some sort of disability appearing in droves, "What is it that renders disabled characters ever-present and yet almost invisible?" (Callus 226).

Anne-Marie Callus reviews Ato Quayson's *Aesthetic Nervousness: Disability and the Crisis of Representation*. Quayson describes various relationships present throughout works featuring disability- relationships between characters with disabilities and characters without disabilities; relationships between plot, motifs, and perspectives and the representation of

disability; and the relationship between the reader and characters with disabilities (228-229).

Callus goes on to analyze the trends observed by Quayson, when looking at the role of disability in literature:

...disabled characters do not have an existence in their own right but serve as a means for other characters to prove themselves...disabled characters also belong to other social minorities... disability [is the] bearer of moral deficit/evil; 'disability [is an] epiphany'...'disability [is a] signifier of ritual insight,'...'disability [is an] inarticulable or enigmatic tragic insight'... and 'disability [is a] hermeneutical impasse,' (228-229).

Disability has served as a "metaphor, trope, allegory, or symbol - in short anything but the portrayal of the lived experience of disability" (Callus 234). Disability in literature has served as a prop in the narrative to symbolize a sort of otherness, often a character that is meant to contrast a protagonist, either physically, mentally, or morally.

Current research reveals a common theme regarding the representation of disability and that is the othering of disability. Callus describes this as a "social narratological disruption," a character included simply to act as a contrary to the "norm." This phenomenon, coupled with the villainization of disability, creates a clear picture of how disability has been illustrated within the realm of literary work. Perhaps with time and progression within the literary community, a greater and more meaningful representation of disability might be seen; the idea that "because the physical/social environment has changed dramatically over the last century, literature has changed as completely... While most contemporary work is not as blatant in casting people with disabilities into the role of evil or sub-human, these ideas are still present in a more subtle form" (Beauchamp et al. 4-5). Beauchamp notes that progress within literature and representation is not and will never be revolutionary, but evolutionary (12).

2 METHODOLOGY: ESRI

I kept track of a list of works featuring disabled characters through the use of a *Google* Sheets spreadsheet. In the early stages of my documentation, I noted the title of the work, the author, the disabled character, and, if possible, the disability featured. I shifted my goal of this list to not only inform myself and my classroom, but also to help other educators and individuals interested in reading about disability or better representing disability in their libraries. In order to broaden the reach of my project, I needed to transfer my spreadsheet to a platform that was accessible and easy to navigate.

	-	-	-	-
Title	Author	Disbaility	Publishing Year	CWD
The Hunchback of Notre Dame	Victor Hugo	OI/Physical/DHH/VI	1831	Quasimodo
Christmas Carol	Charles Dickens	OI/Physical	1843	Tiny Time
Jane Eyre	Charlotte Bronte	OI/Physical/VI	1847	Rochester
Dombey and Son	Charles Dickens	ОНІ	1848	Master Paul Dombey (Little Dombey)
Hop-Frog	Edgar Allan Poe	OI/Physical	1849	Hop-Frog
Olive	Dinah Maria Mulock Craik	OI/Physical	1850	Olive
Moby Dick	Herman Melville	OI/Physical	1851	Captain Ahab
Friarswood Post-Office	Charlotte Mary Yonge	OHI/Tuberculosis	1860	Alfred
Brother Jacob	George Eliot (Mary Ann Evans)	SLD	1864	Jacob
The One Moss Rose	Philip Power	OI/Physical	1867	Jacob Dobbin
The Moonstone	Wilkie Collins	SLI/OHI(?)	1868	Dr. Candy and Ezra Jennings
Down the River	William Taylor Adams	OI/Physical	1868	Flora and sister
What Katy Did	Susan Coolidge	OI/Physical	1872	Katy
The Pillars of the House	Charlotte Mary Yonge	OI/Physical	1873	Geraldine Underwood
The Little Lame Prince	Dinah Maria Mulock Craik	OI/Physical	1875	Prince Dolor

Figure 2.1 Beginning of the Archive Master List

Having used ESRI Story Maps in the past, I was familiar with the platform and knew that it offered a user-friendly navigation for site viewers. I looked through the various templates and layouts offered and decided that the Story List Shortlist would best fit my needs. ESRI describes the Story Map Shortlist as follows, "This app lets you present places of interest organized into tabs, making it fun for people to explore what's in an area. You can author your places interactively in this Builder." All ESRI templates incorporate a map feature, but I had no intention to incorporate location into my initial project due to what was quickly turning from a simple list of books to a full fledged archive of works.

That being said, I was intrigued by the possibility of using a few different filters to categorize works. I decided to backtrack a bit and document the year of publication as well as the city of initial publication for the works I had documented at the beginning of my search. These two additions, as well as cover images that are in the public domain, worked to my help in my creation of my ESRI Story Map Shortlist. I grouped works together by year of publication: 1800s, 1900-1959, 1960-1989, 1990-1999, 2000-2009, 2010-2019. Each time period had a corresponding tab that would display the appropriate works.

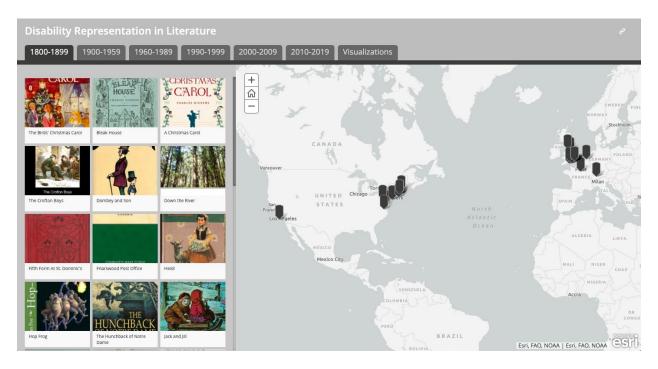


Figure 2.2 ESRI 1800-1899 Screenshot

At this point, my project had grown to a point where it had value for both educators and scholars. There is the possibility that an archive like this could be used for studying and analyzing the representation of disability and disabled characters in literature. This analysis would require a technique that quantifies whole texts or large data sets. I began to explore distant reading and how I could incorporate data visualization within my archive and project.

3 LITERATURE REVIEW: DISTANT READING

As mentioned previously, data visualizations are a critical part to my data collection and analysis process. Creating a list of works that feature a disabled character was just the beginning. Incorporating distant reading was an idea that evolved over time. My initial introduction to the idea of data analysis in literary studies came from my undergraduate roommate, an artificial intelligence major, who created a computer program that determined the genre of a piece of fan fiction.

Fast forward a few years later and I am sitting in my first graduate course listening to a colleague discuss his thesis idea: using *Voyant* and distant reading to analyze the different editions of Walt Whitman's *Leaves of Grass*. I was inspired by this idea, but had yet to craft a plan for my own thesis.

It wasn't until my second graduate semester, upon reading *Graphs, Maps, Trees* by Franco Moretti, that I was explicitly introduced to distant reading and data analysis within literary studies. When discussing distant reading in literary studies Moretti describes the potential for "A more rational literary history" (4). This philosophy aligns with my own when thinking about what literary analysis can look like.

Moretti elaborates on this idea of literature as a rational system in "Conjectures on World Literature" featured in *Distant Reading*. The premise of this essay is Moretti grappling with the concept of "world literature" as well as his aversion to the field of comparative literature within literary studies. Moretti explains that even experts in their literary field are merely experts of canonical works, a collection that makes up such an insignificant amount of an actual body of work. He utilizes distant reading, or at least quantitative analysis, "World literature is not an object, it's a *problem*, and a problem that asks for a new critical method: and no one has ever

found a method by just reading more texts. That's not how theories come into being; they need a leap, a wager – a hypothesis, to get started" (47). The hypothesis Moretti goes on to explore is the belief that under the guise of world literature, yes literature would become one, but would ultimately be unequal, revolving around Western European literature.

The challenge, Moretti explains, with discussing the concept of "world literature" is the sheer enormity of published texts. The only way to approach looking beyond the canon, embracing a literature representative of the world, is to increase the distance between the reader and the texts. This approach, though, contradicts what some would consider the hallmark of literary studies, close reading,

...if you want to look beyond the canon... close reading will not do it. It's not designed to do it, it's designed to do the opposite. At bottom, it's a theological exercise – very solemn treatment of very few texts taken very seriously – whereas what we really need is a little pact with the devil: we know how to read texts, now let's learn how *not* to read them (48).

Although counterintuitive to literary analysts, looking at an immense body of texts as a data set allows analysis to become objective, quantitative, and efficient.

What Moretti ultimately found in his initial exploration of world literature was that although the emphasis of literary studies is on Anglo-French trends, that is not the case on the grander scale. Quite the contrary, world literature is not built upon the backs of canonical Anglo-French works, but varies greatly:

...world literature was indeed a system – but a system of *variations*. The system was one, not uniform. The pressure from the Anglo-French core *tried* to make it uniform, but it could never fully erase the reality of difference. (See here, by the way, how the study of

world literature is – inevitably – a study of the struggle for symbolic hegemony across the world.)

It is easy to fall back on the canonical authors who are rooted in Western literature: Irving, Cooper, Poe, Hawthorne, and Melville. Distant reading debunks the idea that those authors reflect the trends of the whole.

Moretti goes on to test this idea of distant reading as a means of assessing canonical and noncanonical works after asking the question: "As more readers select Conan Doyle over L.T. Meade and Grant Allen... Why is Conan Doyle selected in the first place? Why him, and not others?" (70). Moretti and his students hone in on the presence and role of clues in detective-fiction novels, mapping the works on a tree, each branch representing the extent to which clues are utilized, if at all (presence of clues, necessary, visible, and decodable). What was revealed through the graphing of 40 detective-fiction, was that works that made it to the top of the list (had clues that are present, necessary, visible, and decodable) were all works by Arthur Conan Doyle.

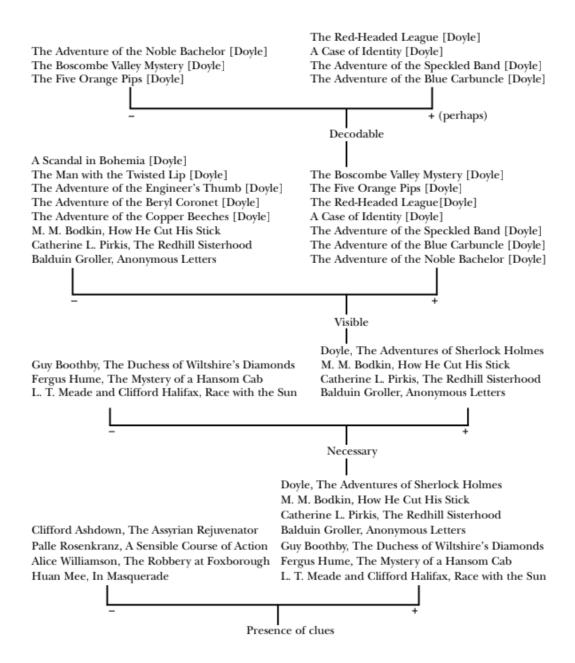


Figure 3.1 Presence of Clues

This experiment was interesting and provided insight into what readers are looking for in their next read: engaging and structured. It also provided insight into what can be revealed when texts are stripped of their plot and analyzed for their elements. It is at this point in my reading of Moretti that I began to picture what graphs or trees might look like blooming with the titles of texts that feature disabled characters.

Distant reading will help to answer some questions and speculations that I have:

- 1. How many characters are surrounded by words that relate to their disability?
- 2. How many characters have other characters mentioned in their 10 most frequent words?
- 3. How many characters have a speech tag present in their 10 most frequent words?
- 4. How many characters have "diminutive" words in their 10 most frequent words?
- 5. What is the percent frequency of the disabled character in the tenth segment?
- 6. How many characters are present throughout the whole story?
- 7. How many characters are not present at the end of the story?
- 8. How many are only present at the end of the story?
- 9. Define diminutive words.
- 10. What words would I consider "related to disability?"

My hypotheses are rooted in my understanding that disabled people are part of a historically marginalized group. I anticipate that disabled characters will not have speech tags within their 10 most frequent words, will not appear throughout an entire story, and will disappear prior to the end of the story. I predict that disabled characters will have other characters, words related to disability, and diminutive words within their 10 most frequent words. I expect historical context spanning from the 1800s to the early 2000s will corroborate my hypotheses. For the entirety of the 1800s as well as the first half of the 1900s, disabled people experienced discrimination, isolation, and segregation. I predict that literature from this period will reflect these historical trends.

4 METHODOLOGY: VOYANT & GOOGLE TRENDS

4.1 Voyant

In order to incorporate distant reading in my archive, I would need full texts to analyze as well as a program to analyze the texts. Only works in the public domain provide unfettered access to literary works as .txt files. All the texts in my archive that were also in the public domain could be found on *Project Gutenberg*. After finding each text, I saved it as a .txt file to my computer. I decided upon this method after much trial and error. In order to analyze these .txt files, I used *Voyant*, "a web-based reading and analysis environment for digital texts." I had attempted to copy and paste a full text into the *Voyant* text box, but my computer is not equipped to handle pasting tens of thousands of characters. I then decided to try to copy and paste works chapter by chapter into a *Google* Doc. This would allow me to begin transferring a text and take a break if needed. This method was extremely tedious and unsustainable. After looking through *Project Gutenberg* with a more careful eye, I realized I can download texts straight from the platform.

When a .txt file is uploaded into *Voyant*, *Voyant* "reads" the text by looking for patterns and trends within the work. Five visualizations and analyses are presented upon pressing "Reveal," Cirrus, Reader, Trends, Summary, and Contexts.

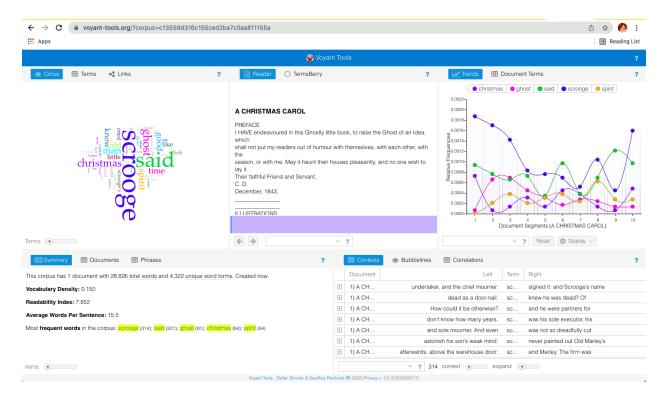
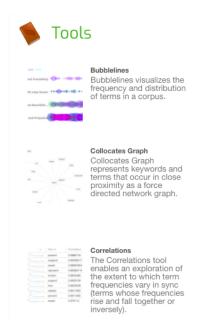


Figure 4.1 Voyant Initial Results

At this point in my research, I had some ideas of what I wanted out of my visualizations, but I needed to figure out which specific visualizations would best fit. *Voyant* outlines the function of each visualization or tool that is offered. I knew I wanted a visualization that would demonstrate a character's presence throughout a story as well as the words that surround a character within a story. These goals led me to choose Contexts, Trends, and Summary. For my archive, I wanted to feature the most frequent words that surround a disabled character. This information would provide valuable insight into how a character was written.



Bubbles is a playful visualization of term frequencies by document.

Corpus Collocates Corpus Collocates is a table view of which terms

Document Terms

appear more frequently in proximity to keywords across the entire corpus.

Document Terms is a table

view of document term



Cirrus

Cirrus is a word cloud that visualizes the top frequency words of a corpus or document.

The Contexts (or Keywords in Context) tool shows each occurrence of a keyword with a bit of surrounding text (the context).



Corpus Terms

Corpus Terms is a table view of term frequencies in the entire corpus.

Figure 4.2 Voyant Tools Part 1



Documents

The Documents tool shows a table of the documents in the corpus and includes functionality for modifying the corpus.



MicroSearch

Microsearch visualizes the frequency and distribution of terms in a corpus.



Scatterplot

ScatterPlot is a graph visualization of how words cluster in a corpus using document similarity, correspondence analysis or principal component analysis.



TermsRadio is a visualization that depicts the change of the frequency of words in a corpus (or within a single document).



Trends shows a line graph depicting the distribution of a word's occurrence across a corpus or document.



Knots

Knots is a creative visualization that represents terms in a single document as a series of twisted lines.



Phrases

The Phrases tool shows repeating sequences of words organized by frequency of repetition or number of words in each repeated phrase.



StreamGraph

StreamGraph is a visualization that depicts the change of the frequency of words in a corpus (or within a single document).



TextualArc is a visualization of the terms in a document that includes a weighted centroid of terms and an arc that follows the terms in document order.



Veliza is an experimental tool for having a (limited) natural language exchange (in English) based on your



Mandala

Mandala is a conceptual visualization that shows the relationships between terms and documents.



1790 Love And Freindshi Reader

The Reader tool provides a way of reading documents in the corpus, text is fetched on-demand as needed.



Summary

The Summary provides a simple, textual overview of the current corpus, including including information about words and documents.



Topics

he Topics tool provides a rudimentary way of generating term clusters from a document or corpus and then seeing how each topic (term cluster) is distributed across the document or corpus.
Word Tree



Word Tree is a tool that allows you to explore how words are used in phrases.

Figure 4.3 Voyant Tools Part 2

There is no visualization that finds the most frequent words around a character. In order to find this information, I needed to use both Contexts and Summary. To use Contexts, I choose a term to isolate: a story's disabled character. Contexts then provides me with each instance of that word within the text as well as the words that come before and after. I chose to include the ten words that precede a disabled character's name and the ten words that follow a disabled character's name.

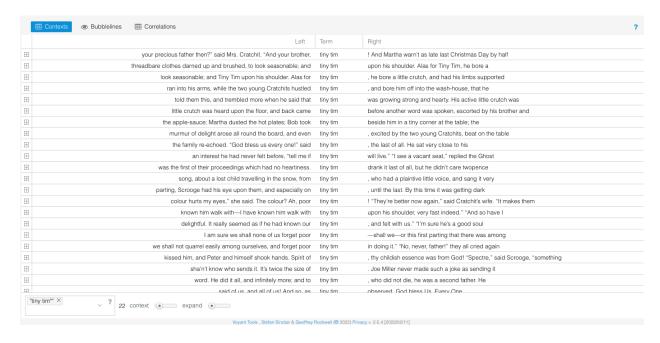


Figure 4.4 Voyant Contexts Results – "Tiny Tim"

I export this Contexts visualization as tab separated values which creates a document that can easily be copied and pasted into a spreadsheet. I paste the values specifically into a *Google* Sheets spreadsheet. I copy and paste the terms preceding the disabled character's name and following the character's name, strategically omitting the character's name, back into *Voyant*. Once *Voyant* has "read" the terms, I refer to the Summary visualization which produces the most frequent words that appear within a text. I can then decipher the ten most frequent words that surround a character's name throughout the text, information I have chosen to feature in my archive.

	A	В	С
1	Left	Term	Right
2	your precious father then?" said Mrs. Cratchit. "And your brother,	tiny tim	! And Martha warn't as late last Christmas Day by half
3	threadbare clothes darned up and brushed, to look seasonable; and	tiny tim	upon his shoulder. Alas for Tiny Tim, he bore a
4	look seasonable; and Tiny Tim upon his shoulder. Alas for	tiny tim	, he bore a little crutch, and had his limbs supported
5	ran into his arms, while the two young Cratchits hustled	tiny tim	, and bore him off into the wash-house, that he
6	told them this, and trembled more when he said that	tiny tim	was growing strong and hearty. His active little crutch was
7	little crutch was heard upon the floor, and back came	tiny tim	before another word was spoken, escorted by his brother and
8	the apple-sauce; Martha dusted the hot plates; Bob took	tiny tim	beside him in a tiny corner at the table; the
9	murmur of delight arose all round the board, and even	tiny tim	, excited by the two young Cratchits, beat on the table
10	the family re-echoed. "God bless us every one!" said	tiny tim	, the last of all. He sat very close to his
11	an interest he had never felt before, "tell me if	tiny tim	will live." "I see a vacant seat," replied the Ghost
12	was the first of their proceedings which had no heartiness.	tiny tim	drank it last of all, but he didn't care twopence
13	song, about a lost child travelling in the snow, from	tiny tim	, who had a plaintive little voice, and sang it very
14	parting, Scrooge had his eye upon them, and especially on	tiny tim	, until the last. By this time it was getting dark
15	colour hurts my eyes," she said. The colour? Ah, poor	tiny tim	! "They're better now again," said Cratchit's wife. "It makes them
16	known him walk with—I have known him walk with	tiny tim	upon his shoulder, very fast indeed." "And so have I
17	delightful. It really seemed as if he had known our	tiny tim	, and felt with us." "I'm sure he's a good soul
18	I am sure we shall none of us forget poor	tiny tim	—shall we—or this first parting that there was among
19	we shall not quarrel easily among ourselves, and forget poor	tiny tim	in doing it." "No, never, father!" they all cried again
20	kissed him, and Peter and himself shook hands. Spirit of	tiny tim	, thy childish essence was from God! "Spectre," said Scrooge, "something
21	sha'n't know who sends it. It's twice the size of	tiny tim	. Joe Miller never made such a joke as sending it
22	word. He did it all, and infinitely more; and to	tiny tim	, who did not die, he was a second father. He
23	said of us, and all of us! And so, as	tiny tim	observed, God bless Us, Every One

Figure 4.5 Excel Contexts - "Tiny Tim"

This corpus has 1 document with 436 total words and 228 unique word forms. Created 26 seconds ago.

Vocabulary Density: 0.523

Average Words Per Sentence: 15.6

Most frequent words in the corpus: said (7); little (4); bore (3); crutch (3); father (3); god (3); known (3); poor (3); shall (3); shoulder (3)

Figure 4.6 Voyant Summary - "Tiny Tim"

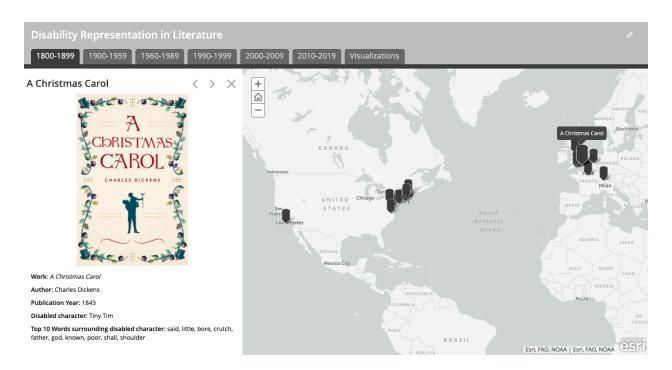


Figure 4.7 ESRI Story Map - A Christmas Carol

4.2 Google Trends

I wanted to find a way to keep track of all my data analysis and observations. I created a spreadsheet that features works that I feature in my archive as well as are in the public domain, works with which I can utilize distant reading. The spreadsheet gleans information that is critical in making meaningful analysis of disability in literature. I include the work analyzed, the disabled character, the frequency of the disabled character's name throughout the entire work, the frequency of the disabled character's name throughout the last tenth of a work, the calculated percentage of a disabled character's name throughout the last tenth of a work, the percentage of a disabled character's name throughout the last tenth of a work, and the *Google Trends* average from 2010 to 2020.

	A	В	С	D ~	E	F	G	Н •	P
1	Work	Author	Disabled Character	Frequency	Last 10th Frequency	Percent in last 10th	Percent in the first 90%	Google Trend Average	e
2	The Birds Christmas Carol	Kate Douglas Wiggin	Carol Snow	98	15	15.31%	84.69%		-
3	Bleak House	Charles Dickens	Grandfather Smallweed	52	C	0.00%	100.00%	45.77272727	7
4	Bleak House	Charles Dickens	Mrs. Smallchild	16	C	0.00%	100.00%	45.77272727	7
5	A Christmas Carol	Charles Dickens	Tiny Tim	22	3	13.64%	86.36%	10.9469697	1
6	The Crofton Boys	Harriet Martineau	Hugh Proctor	686	57	8.31%	91.69%		-
7	Dombey and Son	Charles Dickens	Paul	508	7	1.38%	98.62%	33.21212121	Ĺ
8	Down the River	William Taylor Adams	Flora	172	10	5.81%	94.19%		-
9	Fifth Form at St. Dominic's	Talbot Baines Reed	Master Anthony "Tony" Pembury	173	2	1.16%	98.84%		-
10	Friarswood Post Office	Charlotte Mary Yonge	Alfred	471	49	10.40%	89.60%		-
11	Heidi	Johanna Spyri	Clara	239	39	16.32%	83.68%	21.09090909)
3	Notre-Dame de Paris	Victor Hugo	Quasimodo	248	30	12.10%	87.90%	16.90151515	5
4	Jack and Jill	Louisa May Alcott	Lucinda Snow	8	1	12.50%	87.50%	8.03030303	3
5	Jack the Hunchback	James Otis	Jack	621	68	10.95%	89.05%		-
6	Jane Eyre	Charlotte Bronte	Bertha Mason	7	1	14.29%	85.71%	22.77272727	7
7	John Smith's Funny Adventure on a Crutch	Ashbel Fairchild Hill	John Smith	99	13	13.13%	86.87%		
8	The Lame Little Prince	Dinah Maria Mulock Craik	Prince Dolor	280	27	9.64%	90.36%	9.681818182	į
9	Melody	Laura Richards	Melody	126	13	10.32%	89.68%		
20	Moby Dick	Herman Melville	Captain Ahab	518	143	27.61%	72.39%	26.38636364	1
21	The Moonstone	Wilkie Collins	Dr. Candy	100	4	4.00%	96.00%	31.58333333	3
22	The Moonstone	Wilkie Collins	Ezra Jennings	62	6	9.68%	90.32%	31.58333333	3
23	Olive	Dinah Maria Mulock Craik	Olive	1274	151	11.85%	88.15%		-
4	The One Moss Rose	Philip Power	Jacob	72	6	8.33%	91.67%		-
5	The Oriel Window	Mary Louisa Molesworth	Ferdy Ross	467	45	9.64%	90.36%		-

Figure 4.8 Excel Masterlist with Conditional Formatting

After using *Voyant*'s Bubblelines to visualize a disabled character's presence throughout a work, I wanted to find a visualization that was more precise. *Voyant*'s Trends takes Bubblelines and really expands on it in a meaningful way. Bubblelines simply maps a work along a horizontal line using various concentrations of circles and shading. Alternatively, *Voyant*'s Trends takes a work and divides it into ten equal parts. It then creates a bar graph that graphs a disabled character's frequency in each segment. For each work in the public domain, I exported the image of the Trends bar graph as well as recorded the raw and relative frequency of a disabled character in the tenth segment of a text, though I used using the raw frequency in my analysis and interpretations.



Figure 4.9 Voyant Bubblelines - "Tiny Tim"

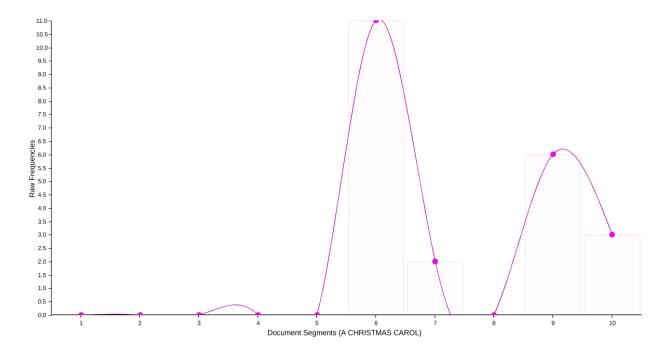


Figure 4.10 Voyant Trends - A Christmas Carol

Including the visualizations and data from the distant reading program, *Voyant*, is helpful, but the information is isolated. How do these visualizations and the information gleaned from these visualizations translate to the real world the public's perception of disability and the public's consumption of literature featuring characters with disabilities? In order to move toward answering these questions, I looked at *Google Trends*.

Google Trends is a program that provides insights into popular Google searches as well as a breakdown of a specific topic's search trends and popularity. Google Trends explains their processes best:

Google Trends provides access to a largely unfiltered sample of actual search requests made to Google. It's anonymized (no one is personally identified), categorized (determining the topic for a search query) and aggregated (grouped together). This allows us to display interest in a particular topic from around the globe or down to city-level geography.

For example, after typing in "A Christmas Carol," I am brought to a page that illustrates various search trends: interest over time, interest by subregion (set to a default of the United States), related topics, and related queries. Initial search results span over the past twelve months, but I change the time span to span from 2010 to present in order to have a broader scope of the lay population's interaction with a text as well as with disability and disabled characters.

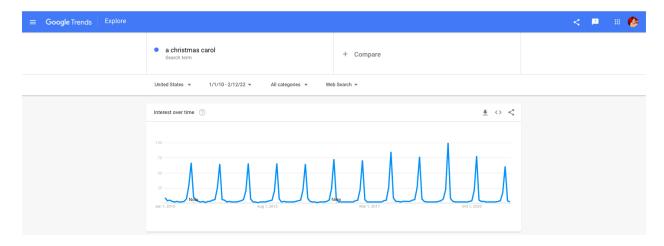


Figure 4.11 Google Trends - A Christmas Carol - Part 1

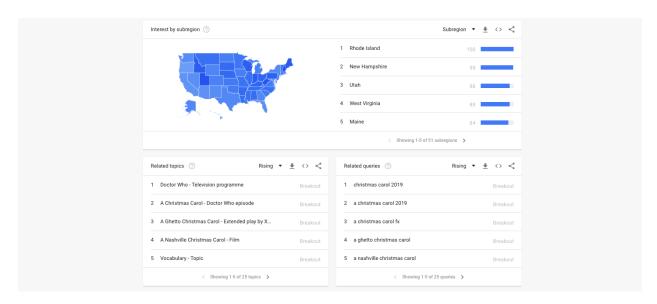


Figure 4.12 Google Trends - A Christmas Carol - Part 2

I am specifically looking at *Google* Trends data for works that I have the full text to analyze, meaning works in the public domain. Of the sixty-eight works that I seek to analyze

using *Google Trends*, twenty-two had enough data and search interest to have any *Google Trends* data. I will dive into the data for interest over time as well as the data and information provided for related topics and queries.

In order to find relevant information from the interest overtime data, I export the graph provided as a .csv file. This type of file allows the user to look at the data in a spreadsheet format, allowing for further analysis as Excel and *Google* Sheets are programs that can perform mathematical analysis. Simply looking at the graphic of the interest over time doesn't provide much insight. The .csv file displays data in two columns: month and trend average. *Google Trends* explains the trends average as follows:

Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. A score of 0 means there was not enough data for this term.

With that information, I calculated the ten year average for each search term using the formula "=AVERAGE(B4:B135)." I used data from January 2010 to December 2020. Although this average spans a broad span of time, it is a useful number when comparing similar data.

	A	В
1	Trends 2010-2020	
2		
3	Month	A Christmas Carol: (United States)
4	2010-01	13
5	2010-02	5
6	2010-03	4
7	2010-04	4
8	2010-05	2
9	2010-06	4
10	2010-07	3
11	2010-08	3
12	2010-09	4
13	2010-10	7
14	2010-11	27
15	2010-12	64
16	2011-01	7
17	2011-02	3
18	2011-03	2
19	2011-04	1
20	2011-05	3
21	2011-06	2
22	2011-07	2
23	2011-08	3
24	2011-09	4
25	2011-10	6
26	2011-11	24
27	2011-12	61
28	2012-01	6
29	2012-02	3
30	2012-03	2

Figure~4.13~Excel~-A~Christmas~Carol~-~Google~Trend~Average~by~Month

5 VISUALIZATION INTERPRETATIONS

5.1 Historical Context

Disability in the 1800s is defined by a literal linguistic definition of disability, Jean Etienne Dominique Esquirol differentiated between idiots and imbeciles. Idiots are individuals who are "incapable of attention, idiots cannot control their sense…" while imbeciles are those who "enjoy the use of the intellectual and affective faculties, but in less degree than the perfect man…" These definitions work to establish the importance of language in conjunction with disability but also designate levels of disability: those fit to interact with life and those not fit ("Understanding and Progress"). The linguistic distinction of disability is coupled with the physical isolation of disabled people. The passage of historical legislation facilitated the admittance of disabled people to institutions, formerly insane asylums.

The turn of the twentieth century did not see a cultural improvement regarding disabled people in society. "Ugly Laws" passed in the late 1800s forbade physically disabled or disfigured individuals from being present in public, the laws were passed at a local level, but nationally, immigration laws became very specific regarding those who can and cannot immigrate to the United States. Those deemed feebleminded, ill, or weak were "excluded from admission into the United States."

As disabled people we defined, excluded, and isolated throughout the 1800s, the early 1900s marked the literal physical extermination of disability and disabled people. The ruling of Buck v. Bell paved the way for not just institutionalized people from being sterilized, but disabled people who were institutionalized in insane asylums, under the care of the State, or simply under the care of their families.

Prior to 1950, the cultural and societal understanding of society involved actively othering disabled people. The United States' passage of the Fair Labor Standards Act outlined how disabled workers and employees were valued less than neurotypical or able-bodied colleagues, earning less than minimum wage, a policy that is still in effect today.

The passage of the Civil Rights Act in 1964, although disabled people were not mentioned in the Act, the Civil Rights Act served as both inspiration but also guidance for what a Disability Rights Movement could accomplish. Post-1950 United States marks changes in physical accessibility. Mass transit, public structures, and schools became physically and culturally accessible to disabled bodies.

The twenty-first century intersects with the linguistic impact of the 1800s, with Rosa's Law redefining disability and ushering out antiquated language from the verbiage of United States Legislation. Jean Etienne Dominique Esquirol defined disability, laying the groundwork for decades of othering experienced by the disabled community. Rosa's Law makes the verbiage of legislation intentional and respectful when referencing disabled bodies. This reframing of disability in such a historically significant way paves the way for disability to move from the shadows and the periphery of society to the spotlight.

Table 5.1 Disability Timeline - Historical Context

Ontario passes an act to Authorize the Erection of an Asylum within this Province for the
Reception of Insane and Lunatic Person, the first piece of Canadian legislation related to
individuals with developmental disabilities (Kerston).
Jean Etienne Dominique Esquirol defines idiots and imbeciles in Des maladies mentales,
considérées sous les rapports médical, hygiénique, et médico-légal. Idiots refer to individuals
who are "Incapable of attention, idiots cannot control their senses. They hear, but do not

	understand; they see, but do not regard. Having no ideas, and thinking not, they have nothing to
	desire; therefore have no need of signs, nor of speech." Imbeciles are individuals who are
	"generally well formed, and their organization is nearly normal. They enjoy the use of the
	intellectual and affective faculties, but in less degree than the perfect man, and they can be
	developed only to a certain extent" ("Understanding and Progress").
1873	British Columbia passes the Insane Asylums Act , which allowed for doctors to admit patients
	diagnosed as "lunatics" to insane asylums. (Lyster).
1881	Chicago's Ugly Law was passed, a municipal ordinance that fined "any person who is diseased,
	maimed, mutilated or in any way deformed so as to be an unsightly or disgusting object" if they
	were to appear in public (Schweik and Wilson).
1907	The Immigration Act of 1907, section 2 states, "That the following classes of aliens shall be
	excluded from admission into the United States: All idiots, imbeciles, feebleminded persons,
	epileptics, insane persons, and persons who have been insane within five years previous
	persons afflicted with tuberculosis persons not comprehended within any of the foregoing
	excluded class who are fund to be and are certified by the examining surgeon as being mentally
	or physically defective, such mental or physical defect being of a nature which may affect the
	ability of such alien to earn a living" ("Reinforcing Immigration Policies").
1927	Buck v. Bell - the Supreme Court ruled that states can forcibly sterilize inmates whose
	imbecility, epilepsy, and feeblemindedness could be passed to other generations (Baker).
1938	Passage of the Fair Labor Standards Act, which permits employers to pay "individuals
	whose impaired by age, physical or mental deficiency, or wages which are-lower than the
	minimum wage" (U.S. Department of Labor).

1964	The Civil Rights Act is passed and becomes a model for the Disability Rights Movement (United States Department of Justice).
1968	The passage of the Architectural Barriers Act states, "The Administrator of General Services shall prescribe standards for the design, construction, and alteration of buildings to insure whenever possible that physically handicapped persons will have ready access to, and use of, such buildings" (U.S. Access Board).
1970	The Urban Mass Transit Act was amended to include: "It is hereby declared to be the national policy that elderly and handicapped persons have the same right as other persons to utilize mass transportation facilities and services" (<i>Public Law 88-364</i>).
1971	Wyatt v. Stickney decided "No person shall be admitted to any publicly supported residential institution caring for mentally retarded persons unless such institution meets the [specified] standards." (<i>Wyatt v. Stickney</i>).
1972	Mills vs. Board of Education rules, "that no child could be denied a public education because of 'mental, behavioral, physical, or emotional handicaps or deficiencies" ("Litigation and Legislation").
1973	The passage of the Rehabilitation Act states, "No otherwise qualified handicapped individual in the United States, shall solely by reasons of his handicap, be subject to discrimination under any program or activity receiving federal financial assistance" (U.S. Department of Education).
1975	The passage of the Education for All Handicapped Children Act states, "State and local agencies have a responsibility to provide education for all handicapped children" (<i>Public Law 94-142</i>).

1976	"Amendments to the Higher Education Act of 1972 , provided for services for the physically		
	disabled students entering college" ("A Brief Timeline).		
1979	The National Alliance for the Mentally Ill is founded (NAMI).		
1988	The Fair Housing Amendments Act ensured, "Builders of housing must also ensure		
	accessibility in certain units and landlords and condominium associations must make reasonable		
	accommodations to meet the needs of disabled tenants" (Schill and Friedman).		
1989	The original version of the Americans with Disabilities Act was revised in preparation and		
	hope of it passing before the turn of the century (ADA).		
1990	The Americans with Disabilities Act (ADA) was signed into law, and becomes one of		
	the "most comprehensive pieces of civil rights legislation that prohibits discrimination and		
	guarantees that people with disabilities have the same opportunities as everyone else to		
	participate in the mainstream of American life to enjoy employment opportunities, to		
	purchase goods and services, and to participate in State and local government programs and		
	services" (ADA).		
2010	Rosa's Law is passed as an act "to change references in Federal law to mental retardation to		
	references to an intellectual disability, and change references to mentally retarded individual to		
	references to an individual with an intellectual disability" (Public Law 111-256).		

5.2 Summary and Contexts

Having identified which visualizations provided meaningful insight into the representations and portrayal of disabled characters in literature, I developed some questions to guide my initial data analysis, previewed in chapter three:

1. How many characters are surrounded by words that relate to their disability?

- 2. How many characters have other characters mentioned in their 10 most frequent words?
- 3. How many characters have a speech tag present in their 10 most frequent words?
- 4. How many characters have "diminutive" words in their 10 most frequent words?
- 5. What is the percent frequency of the disabled character in the tenth segment?
- 6. How many characters are present throughout the whole story?
- 7. How many characters are not present at the end of the story?
- 8. How many are only present at the end of the story?
- 9. Define diminutive words.
- 10. What words would I consider "related to disability?"

Questions one through four can be answered, or at least addressed, using *Voyant*'s Summary and Contexts. Questions five through eight can be addressed using *Voyant*'s Trends graph. Finally questions nine and 10 require me to create a definitive parameter for what language relates to disability as well as what language qualifies as "diminutive." It is important to define the language that I will be looking for in my analysis, so I will begin by answering questions nine and 10.

Merriam Webster defines diminutive (adj.) as "indicating small size and sometimes the state or quality of being familiarly known, lovable, pitiable, or contemptible." As opposed to focusing on the state of being diminutive in terms of size, I am focusing on the latter part of the definition: pitiable and lovable. Although my analysis of Summary and Contexts when looking at the top ten most frequent words that surround a disabled character within a work will be my own analysis and thus subjective, I will make a concerted effort to identify words that might objectively fall under the umbrella of pitiable or contemptible synonyms.

Back to my list of questions: as stated earlier, questions one to four connect specifically to the Summary and Contexts visualizations within *Voyant*. Below are the questions as well as my hypotheses developed for each question.

Table 5.2 Analysis Questions and Hypotheses 1-4

	.2 Analysis Questions and Hypotheses 1-4 Question		Hypothesis
	Question		11) pomests
1.	How many characters are surrounded	1.	I hypothesize that the majority of works
	by words that relate to their disability?		published in the 1800s and the 1900s will
			have disabled characters closely
			associated with words that relate to
			disability.
2.	How many characters have other	2.	I hypothesize that the majority of works
	characters mentioned in their 10 most		published in the 1800s and the 1900s will
	frequent words?		have disabled characters closely
			associated with other characters.
		3.	I hypothesize that the majority of works
3.	How many have a speech tag present		published in the 1800s and the 1900s will
	in the 10 most frequent words?		have disabled characters that are not
			closely associated with a speech tag.
		4.	I hypothesize that the majority of works
			published in the 1800s will have disabled

4. How many characters have "diminutive" words in their 10 most frequent words? characters closely associated with

"diminutive" words. I hypothesize that the
majority of works published in the 1900s
will have disabled characters not closely
associated with "diminutive" words.

These questions and hypotheses require further clarification, such as: what words would I consider "related to disability?" and what words would I consider to be "diminutive?" The use of definitive language will help in my analysis as well as determining the accuracy of my hypotheses.

Of the 35 disabled characters featured in works published in the 1800s, eight of them have words that pertain to their disability in their ten most frequent words. Words include: crutch, Ricketts, deaf, bedridden, mad, illness, cast, and crutch. Additionally, 23 of the characters have diminutive words featured in their ten most frequent words, a proportion of 65.7%. A total of 33 diminutive words describe 23 characters. Within these 33 instances, there are 19 uses of the word "little," eight uses of the word "poor," and six uses of the word "old." 30 of the 35 characters, 85.7%, have another character mentioned in their ten most frequent words, including both names of characters and relational monikers such as mother, father, and brother. Lastly, 26 characters, 74.3%, have a speech tag (said, say, ask, called) featured in their most frequent words.

Of the 32 disabled characters featured in words published in the 1900s, one of them has a word that pertains to disability in its ten most frequent words. That word is crutch. Additionally, 11 of the characters have diminutive words featured in their ten most frequent words, a proportion of 34.3%. A total of 12 diminutive words describe 11 characters. Within these 12

instances, there are nine uses of the word "little," one use of the word "poor," and two uses of the word "old." 31 of the 32 characters, 96.9%, have another character mentioned in their ten most frequent words, including both names of characters and relational monikers. Lastly, 30 of the 32 characters, 93.8% have a speech tag featured in their most frequent words.

My first hypothesis, the majority of works published in the 1800s and the 1900s will have disabled characters closely associated with words that relate to disability, was proven to be incorrect. My second hypothesis, the majority of works published in the 1800s and the 1900s will have disabled characters closely associated with other characters, was proven to be correct. My third hypothesis, the majority of works published in the 1800s and the 1900s will have disabled characters that are not closely associated with a speech tag, was proven to be incorrect. My fourth hypothesis, the majority of works published in the 1800s will have disabled characters closely associated with "diminutive" words, was proven to be partially correct. The majority of the works published in the 1800s have disabled characters closely associated with "diminutive" words, but the majority of works published in the 1900s do not have their disabled characters closely associated with "diminutive" words.

From works published in the 1800s to works published in the 1900s, there was a decrease in the proportion of works that referenced a disabled character's disability in the ten most frequent words. There was also a decrease in the proportion of works which utilized diminutive words in a disabled character's ten most frequent words. There was, however, an increase in the proportion of works that feature another character's name or relational moniker in a disabled character's ten most frequent words. There was also an increase in the proportion of characters whose most frequent words feature a speech tag.

From the 1800s to the 1900s, the decrease in reference to disability as well as the decrease in diminutive language could indicate an improved perspective on disability. Because diminutive language and disability-related language are still present throughout works published in the 1900s, I hesitate to say that the attitude or understanding of disability was transformed, but there is some indication that there is a shift away from the trope of disability being used as a tool to portray a "saintly invalid" or a symbol of tragedy. Additionally, the increase in the use of speech tags in the ten most frequent words of disabled characters from the 1800s to the 1900s could indicate that disabled characters are slowly moving toward the center of the plot, away from the periphery. Speech and dialogue are common tools in character development, so the increase of speech tags surrounding disabled characters could be inferred as furthering character development for disabled characters within narratives.

These findings are somewhat consistent with the historical context provided in 5.1. The 1800s were punctuated with physical and linguistic isolation of disabled people. The attitude from the 1800s to the early 1900s, culturally, did not change drastically. The literary trends that appear are consistent with the 1800s, but the 1900s literary trends are less consistent with the historical context. Disability in the first half of the twentieth century mimics that of disability in the 1800s, themes of isolation and othering remained. More progress is reflected in the representation of disability from the 1800s to the 1900s in literature than was reflected legislatively and societally.

Another interpretation of this increase in speech tags could be that disabled characters became more prominent as tools to advance the characterization of other characters in a story. A character's disability could solicit pity from another character or need to be "fixed" or "saved" by another character. This interpretation is supported by the fact that there is also an increase in

the frequency of the mentioning of other character names and relational monikers in disabled characters' ten most frequent words in works published in the 1900s.

It is abundantly clear based on these findings that disabled characters are likely not the main characters in the works in which they are featured. Their establishment as characters is often dependent upon their disability as well as their relationship to other characters. The increase in speech tags is an increase in existence and acknowledgment that disabled characters have thoughts, ideas, and feelings worth expressing. An increase in speech tags and a decrease in words relating to a character's disability establishes disabled characters as more than a literary device and instead is approaching establishing disabled characters as existing at all.

5.3 Trends

Looking back at the questions I asked at the beginning of this chapter, I want to move on and dive into questions five through eight:

Table 5.3 Analysis Questions and Hypotheses 5-8

Questions		Hypotheses		
5.	What is a disabled character's relative	5.	I hypothesize that more than 50% of the	
	frequency in the tenth segment?		works published in both the 1800s and the	
			1900s will have disabled characters with	
			frequencies below 10% in the last tenth	
			segment of a work.	
6.	How many characters are present	6.	I hypothesize that less than 50% of the	
	throughout the whole story?		works published in both the 1800s and the	
			1900s will have disabled characters that	

			are present throughout the whole story.
7.	How many characters are not present at the end of the story?	7.	I hypothesize that more than 50% of the works published in both the 1800s and the 1900s will have disabled characters that are not present in the last tenth of a work.
8.	How many are only present at the end of the story?	8.	I hypothesize that less than 50% of the works published in both the 1800s and the 1900s will have disabled characters that are only present in the last tenth of a work.

As stated earlier, these questions can be addressed using *Voyant*'s Trends graphs.

Of the 35 disabled characters featured in works published in the 1800s, 19 of them, or 54.3%, were present throughout an entire story. To determine this, *Voyant* divides a text into 10 equal segments then detects the presence of a character's name in each segment. This is then graphed as a compound chart including a bar and line graph. An example is below.

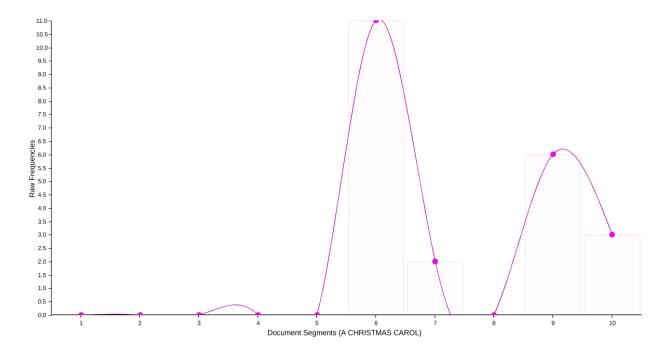


Figure 5.1 Voyant - A Christmas Carol - Trends

Using a character's presence in the last tenth of a work serves as an indicator of whether or not a disabled character was used to advance the plot and characterization of the protagonist during the rising action and exposition of a narrative or whether or not a disabled character died prior to the resolution of a story. Both phenomena mentioned are common literary tropes that appear alongside the presence of a disabled character. When *Voyant* divides a work into ten sections, protagonists and prominent characters should appear consistently throughout a text. *Voyant* is also able to calculate the frequency with which a character appears in each section, displayed as a percentage. A character that appears consistently throughout a work should have a frequency of approximately 10% per section.

Of the 35 disabled characters featured in works published in the 1800s, 17 of them, or 48.6%, were present in the last tenth of the work with a frequency of at least 10%. 32 of the disabled characters, 88.9%, were present in the last tenth of the work at all. Three characters,

8.6% of them, were totally absent from the last tenth of a work. There were no characters that were only present in the last tenth of the work.

Of the 32 disabled characters featured in works published in the 1900s, 17 of them, or 53.1%, were present in the last tenth of the work with a frequency of at least 10%. 22 of the disabled characters, or 68.8%, were present throughout an entire story. Additionally, of the 32 disabled characters featured in works published in the 1900s, 31 of them, or 96.9%, were present in the last tenth of a work. One character was completely absent from the final tenth segment.

My first hypothesis, more than 50% of the works published in both the 1800s and the 1900s will have disabled characters with frequencies below 10% in the last tenth segment of a work, was proven to be half correct. Over 50% of the works published in the 1800s had disabled characters with frequencies below 10% in the last segment, but less than 50% of the works published in the 1900s had disabled characters with frequencies below 10% in the last tenth of a work. My second hypothesis, less than 50% of the works published in both the 1800s and the 1900s will have disabled characters that are present throughout the whole story, was proven to be incorrect. My third hypothesis, more than 50% of the works published in both the 1800s and the 1900s will have disabled characters that are not present in the last tenth of a work, was proven incorrect. My fourth hypothesis, less than 50% of the works published in both the 1800s and the 1900s will have disabled characters that are only present in the last tenth of a work, was correct. In every component analyzed above, there was an increase in disability representation. In works published in the 1800s, disabled characters were present throughout the entire story 54.3% of the time. In works published in the 1900s, disabled characters were present throughout the entire story 68.8% of the time, an increase of 15.5%. Disabled characters in works published in the 1800s appeared in the tenth segment of a work with a frequency of at least 10% 48.6% of the

time. This rate increased to 53.1% for disabled characters featured in works published in the 1900s. Disabled characters in works published in the 1900s appeared throughout an entire text 96.9% of the time, an increase from 1800s works which featured disabled characters throughout an entire text 88.9% of the time. Lastly, there was a decrease in disabled characters disappearing from a text in the last tenth segment of a text. 8.6% of disabled characters in works published in the 1800s were absent from the last tenth segment of a text. This decreased to 3.1% of disabled characters in works published in the 1900s who were absent from the last tenth segment of a text.

The increased presence of disabled characters in the last tenth of a work and throughout the entire work is yet another indicator of increased establishment of existence for disabled characters and disabled audiences. The explanation of this increased disability representation from the 1800s to the 1900s could reflect a cultural shift in disability visibility and acceptance. Disability in the nineteenth century was defined by the establishment of formal Deaf education and the invention of Braille as well as intense isolation and segregation of disabled bodies from society. The turn of the twentieth century also introduced Eugenics Sterilization Laws that led to thousands of sterilizations for disabled individuals, so the shift in the understanding of disability was by no means transformed at the turn of the twentieth century (*The History of Disability Rights in the United States*). This shift has been noted to occur in the latter half of the twentieth century and into the twenty-first century, "...in the last half of the 20th century and the beginning of the 21st, there has been movement toward an acknowledgement of the normalcy of disability" (Beauchamp et al.). The increase in disability visibility is almost paradoxical when analyzed next to the literal erasure of disabled people at the turn of the twentieth century.

The representation of disability in literature undoubtedly improved. There was increased representation reflected in literature from 1800s to 1900s. This improved representation was not

apparent in "real life." Disability didn't become a societal priority until the late 1960s and into the 1970s. This discrepancy in representation leads to a phenomenon that could be culturally significant and influential. Literature and character development can, in fact, shape the marginalized groups are perceived and treated by the world off the page.

5.4 Google Trends

I used *Google Trends* to determine a work's popularity or traction with the lay population. *Google Trends* determines a search term's popularity over time. This popularity is quantified; *Google Trends* explains, "Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. A score of 0 means there was not enough data for this term." After entering a search term, *Google Trends* creates a dashboard of graphics and data including interest over time, interest by subregion, related topics, and related queries.

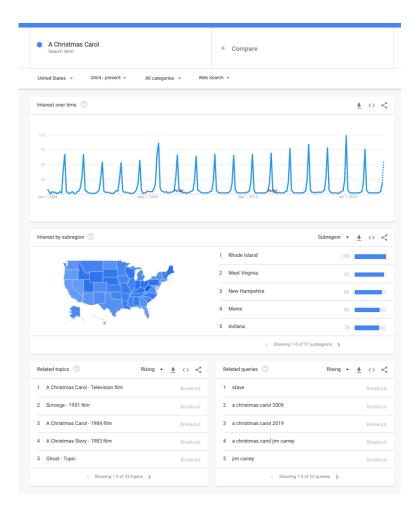


Figure 5.2 Google Trends Results - A Christmas Carol

For this project, I added an 11-year time constraint, adding the parameters of 1-2010 to 12-2020. I searched for each work that featured a disabled character on the *Google Trends* platform. I then exported the resulting data to a *Google* Sheets spreadsheet using a .csv file. *Google Trends* applies an average to each month representing a search term's popularity. All of the averages, 132 total, are represented on my *Google* Sheets spreadsheet. I found the 11-year average and recorded that on the spreadsheet as well. It is important to note that I gathered data from published works' titles as opposed to the disabled characters featured.

For works that do not have an active enough search history, *Google Trends* does not display a graph and instead displays the message: Hmm, your search doesn't have enough data to show here.

After finding the 11-year average for each work, for works that had enough data to do so, I cross-referenced those numbers to the frequency of a disabled character's presence in the last tenth of a work. Of the 36 disabled characters featured in works published in the 1800s, 13 of the works which feature those disabled characters had any traction on *Google* Search. Of those 13 works that had data on *Google Trends*, 11 works had characters that were present in the last tenth segment of a work. Finally, of those 11 works that have characters that are present in the last tenth segment of a work, seven works, 19% of the works, had characters whose frequency was greater than 10%.

Of the 32 disabled characters that were featured in works published in the 1900s, seven of those works had traction on *Google Trends*. Those seven works featured a disabled character in the last tenth of the work. Of those seven works, four, 13% of the total number of works, had characters whose frequency was greater than 10%.

I looked at what works have a high *Google Trends* average, indicating there is some traffic and interest. I wanted to see if works that have relatively high popularity also have a disabled character present throughout a story, specifically in the last tenth of the work with a frequency of at least 10%. I pinpointed the top three works with the highest *Google Trends* average. Among works published in the 1800s, *Treasure Island* has the highest *Google Trends* average, 61.75. John, a disabled character, was present in the last tenth of the text with a frequency of 10.47%. *Bleak House* has the next highest *Google Trends* average, 45.77272727. *Bleak House* features two disabled characters, Mrs. Smallweed and Grandfather Smallweed.

Neither character is featured in the last tenth of the work. *The Return of the Native* has the next highest Google Trend average, 33.0530303. Johnny, a disabled character, is not present in the last tenth of the text.

Among works published in the 1900s, *Of Mice and Men* has the highest *Google Trends* average, 44.06818182. Lennie, a disabled character, is featured in the last tenth of the text with a frequency of 14.17%. *The Heart is a Lonely Hunter* has the next highest *Google Trends* average, 34.36363636. *The Heart is a Lonely Hunter* features two disabled characters, John Singer and Spiros Antonapoulos. John Singer appears in the last tenth of the work with a frequency of 4.35%, but Spiros Antonapoulos does not appear in the last tenth of the work. The work with the third highest *Google Trends* average that was published in the 1900s was *Lady Chatterley's Lover* with an average of 33.98484848. Clifford Chatterley, a disabled character, is featured in the last tenth of the work with a frequency of 8.66%.

Prior to analyzing *Google Trends* data, I had been consistently proven wrong in the representation of disabled characters in literature based on the *Voyant* data and distant reading visualizations. *Voyant* had indicated that from the 1800s to the 1900s there had been a decrease in the number of disabled characters whose top ten words featured words pertaining to disability as well as diminutive words. There was an increase in speech tags featured in disabled characters' ten most frequent words. Between the nineteenth and twentieth centuries, disabled characters appeared more frequently in the last tenth of a literary work. There was also an increase in the rate at which disabled characters appear throughout an entire work. Lastly, there was a decrease in the rate at which a disabled character disappears from a text.

Despite a decrease in character disappearance, a small percentage of popular works, works that have data on *Google Trends*, have a disabled character present in the last tenth of the

work. This fact makes it apparent that disability and disabled characters served as a plot device to advance the plot of a story. Works that feature a disabled character throughout the entirety of a work, were less likely to have *Google Trends* data. Disability to literary audiences was not a story to be told, but instead a tool to tell someone else's story. That trend, though, was greatly influenced by canonized authors whose works were and continue to be widely regarded within academia and literary audiences as a whole as literature worth reading. *Google Trends* data can also provide insight into the influence of academia on the reception of certain works with disabled characters.

Google Trends average is often coupled with "Related Topics" and "Related Queries."

"Topics" and "Queries" outline common search terms that accompany a work. For example, the top five "Related Topics" for A Christmas Carol are "A Christmas Carol - Television Film...

Scrooge - 1951 film... A Christmas Carol - 1984 film... A Christmas Story - 1983 film... Ghost - Topic" and the top five Related Queries for A Christmas Carol are "stave... A Christmas Carol 2009... A Christmas Carol 2019... A Christmas Carol Jim Carrey... Jim Carrey." The difference between the two is slight: "Topics" refers to the idea, which would be a category of related searches while queries would be the text of the searches themselves. "Topics" and "Queries" define the related search terms and search trajectories as they relate to a primary search term, such as A Christmas Carol.

Looking first at works with the highest *Google Trends* average, I wanted to see if "Related Topics" and "Queries" related to secondary or post-secondary education. *Bleak House*, the work with the highest *Google Trends* average among works published in the 1800s, has terms such as "summary" and "*SparkNotes*" present in its list of "Related Topics" and "Queries." "Summary" and "*SparkNotes*" implies some research was done alongside *Bleak House* that

relates to a classroom. Works that are featured in a classroom setting are often the works that become canonized. When looking at the most popular works according to *Google Trends* and seeing if those works are associated with pedagogical lingo, it becomes clear that works are popular perhaps because they are perpetuated by academia.

Of the works published in the 1800s that have the highest *Google Trends* average, four of the five works have "Related Topics" and "Related Queries" that allude to academia. *Bleak House, The Moonstone,* and *Return of the Native* all have "Related Topics" and "Queries" that include "summary" and "*SparkNotes.*" *Treasure Island*'s "Related Topics" and "Queries" contain the term "summary."

Works written in the nineteenth century were written during a historical period where disability still remained a mystery. Disability didn't enter the public view in terms of US politics and policy until 1907, and the policies that began to be instituted were not written in a favorable manner for disabled people. Prior to 1907, the United States delegated the job to private schools and religious organizations. Schools for the deaf and dumb and asylums for the mad were seen as the only safety net disabled people needed. With language and institutions like that, it is unsurprising to see that disabled people are not adequately reflected in literature.

For works published in the 1900s with *Google Trends* data, the three with the highest *Google Trends* average all have "Related Topics" and "Queries" related to academia and scholarship. Academia paves the way for popular and widely read literature. It is unsurprising that the most popular works according to *Google Trends* are often found in educational institutions. What is disappointing is that this literature cannot be assumed to represent disability in a way that is meaningful and intentional.

The disappearance of disabled characters in the last tenth of literary works, specifically popular and widely read literary works, throughout both the nineteenth century as well as at the turn of the twentieth century has a more sinister interpretation. Excluding a character from the end of a work implies that that character's story remains incomplete. Characters that are excluded from the finale of a work is a means of terminating a character's existence. The idea that there needs to be no resolution for a disabled character is the literary equivalent to killing a character off. Disabled characters were consistently exterminated throughout the nineteenth and the early twentieth century. Despite the fact that some data indicates disabled characters experiencing an increase in representation, popular works and works that gain traction and recognition, continue to omit disabled characters from the entirety of a story.

Voyant data and data visualizations indicate that there are in fact literary works that feature characters that are included in the resolution of a work. There is a connection between a character having traction on Google, featuring Google "Related Topics" and "Queries" related to scholarship, and the termination of a disabled character prior to the resolution of a literary work. The popularity of works that feature a disabled character who is absent from the final tenth of a work is intriguing, and it is something to dive into. Although I doubt that literary works that are chosen not just by academics but by the lay population, are chosen because disabled characters are used merely as plot devices or are used and then their storylines are terminated before the resolution of a work, there is something unsettling about how there seems to be a huge discrepancy in how those works are read compared to their adequately representative peers. Disabled bodies are often perceived as less palatable. There may not be a conscious aversion, but there is a comfort in reading works that reinforce a reader's understanding of the world around them.

Telling the story of disabled characters can be uncomfortable for able bodied or neurotypical authors. Similarly, reading the story of disabled characters can be uncomfortable for able bodied and neurotypical readers. Stories where the main character is disabled or a disabled character is prominently featured are not the stories that have ever been sought after because historically disabled people have stories that are not worth telling. There is a societal understanding of disability that portrays disability as a life that is less than, a life that is lacking. How can disability be fixed, cured, or ignored?

This aversion to disabled bodies, coupled with the tight grip of canonized, able-bodied, and (potentially) neurotypical authors, makes the *Google Tren*ds data make sense. Although there were works published throughout the nineteenth and turn of the twentieth century that prominently featured disabled characters or portrayed disabled characters in a way that was meaningful, audiences continued to gravitate toward works that terminated disabled characters from the last tenth of a story. *Google Trends* data is consistent with this tendency of audiences to continually seek literature that does not adequately represent disability.

6 CONCLUSION & NEXT STEPS

My thesis evolved into a project of discovery. Questions led to answers, but more often led to more questions. The broad question of disability representation remained at the forefront of my research.

What has become apparent is that popular works often don't feature disability in a way that is representative of the disabled experiences. Popular works often have disabled characters disappear before the end of a story. Disabled characters are intentionally used as a tool to tell a story, but seldom is the story being told, one of a disabled character's.

A major obstacle for my research was the inaccessibility of texts. Initially, I wanted to have a larger pool of data to interpret. Only works in the public domain are available in the .txt format. In future iterations of this project, it would be valuable to access a wider variety of texts in order to gain insight into further developments that have been made in the realm of disability representation into the twenty-first century.

In my search for works that feature disabled characters, I found *Discriptionary*, an online library of books that feature disabled characters. The difference between the *Discriptionary* and my online archive is that the *Discriptionary* has rigid guidelines regarding what works can be included in the library, explained below:

- The character/s in the book are blank, one-dimensional, and have no other characteristics than their disability.
- The sole purpose of the character/s' disability is to dehumanise them and show how flawed or evil they are.
- The characterisation leads the reader to pity the character/s and/or think of them as a monster or a freak.

- The character/s "fix" their disability through redemption or expiation, or once they find their way to happiness
- The plot revolves around a mission to find a "cure" for a disability
- Science or magic offers a "cure" to the character/s as a reward
- The author displayed the disability with blatant inaccuracy or ableism (keeping in mind that all experiences are different)
- The plot promotes eugenics and the idea that disability must be erased.

The criteria listed above serve as a first step in combating the use of disability as a device as opposed to a story in and of itself. Holding literature and writing to a higher standard plays a role in seeing more adequate representation in popular works. Normalizing the idea that audiences and readers can in fact reject literature based on its portrayal of disability is important in holding academia and scholars accountable for the works that they continue to study and circulate.

It is radical to suggest getting rid of classics such as *Treasure Island* because a disabled character is closely associated with a word that related to disability or such as *The Sound and the Fury* because the disabled character is not present throughout the entirety of the work, but it is suggestions like those that begin conversations about why those books are classics in the first place.

Looking at a work that I have personally taught in the classroom, *A Christmas Carol*, I think about the planning meetings I sat through where my colleagues explained, "Students love this play, we've taught it for the past decade." I nodded and taught the play, despite the fact that I was a special education teacher and knew that disability was flagrantly used as a tool and nothing more. Scrooge is a greedy man who cares for no one. He sees a man with a disabled son. Scrooge changes his way and lifts the disabled boy on his shoulders. Scrooge is redeemed. Tiny Tim, *A*

Christmas Carol's disabled character, appears sporadically throughout the work and makes a triumphant return at the end of the work to reinforce the protagonist's famous transformation.

Disability being used in this way: either disappearing before the end of a work or being used so clearly to advance the character development of a protagonist sends a message that those who are disabled are not worth the time to establish their own character development. There is no thought to the fact that disabled people are reflected in these stories and are portrayed as less than human, individuals who have no story to tell and exist for the sole purpose of telling an able-bodied, neurotypical person's story.

There is also some ambiguity in character names and identifying monikers. For example, there are works whose characters have names that are ambiguous in terms of distant reading. In *The Birds' Christmas Carol*, the disabled character is Carol Bird. This becomes a hurdle when I am trying to analyze the words that surround the word "carol." The following excerpt is an example of a passage that might complicate a distant reading data set: "Carol, brothers, carol, carol joyfully, carol the good tidings, carol merrily! And pray a gladsome Christmas for all your fellow-men: Carol, brothers, carol, Christmas Day, again." When I use *Voyant* to find the words that surround the word "carol," *Voyant* cannot distinguish between homophones, so any context

of carol, character name or Christmas folk song, gets pulled.

	A	В	C
1	Left	Term	Right
2			
3	as one glad strain fell upon another in joyful harmony: "	carol	, brothers, carol, Carol joyfully, Carol the good tidings, Carol merrily
4	glad strain fell upon another in joyful harmony: "Carol, brothers,	carol	, Carol joyfully, Carol the good tidings, Carol merrily! And pray
5	strain fell upon another in joyful harmony: "Carol, brothers, carol,	carol	joyfully, Carol the good tidings, Carol merrily! And pray a
6	upon another in joyful harmony: "Carol, brothers, carol, Carol joyfully,	carol	the good tidings, Carol merrily! And pray a gladsome Christmas
7	harmony: "Carol, brothers, carol, Carol joyfully, Carol the good tidings,	carol	merrily! And pray a gladsome Christmas For all your fellow
8	And pray a gladsome Christmas For all your fellow-men:	carol	, brothers, carol, Christmas Day again." One verse followed another, always
9	a gladsome Christmas For all your fellow-men: Carol, brothers,	carol	, Christmas Day again." One verse followed another, always with the
10	And pray a gladsome Christmas For all your fellow-men:	carol	, brothers, carol, Christmas Day again." Mrs. Bird thought, as the
11	a gladsome Christmas For all your fellow-men: Carol, brothers,	carol	, Christmas Day again." Mrs. Bird thought, as the music floated
12	its halo of pale yellow hair, finer than floss silk. "	carol	, brothers, carol, Carol joyfully, Carol the good tidings, Carol merrily
13	of pale yellow hair, finer than floss silk. "Carol, brothers,	carol	, Carol joyfully, Carol the good tidings, Carol merrily!" The voices
14	pale yellow hair, finer than floss silk. "Carol, brothers, carol,	carol	joyfully, Carol the good tidings, Carol merrily!" The voices were
15	hair, finer than floss silk. "Carol, brothers, carol, Carol joyfully,	carol	the good tidings, Carol merrily!" The voices were brimming over
16	silk. "Carol, brothers, carol, Carol joyfully, Carol the good tidings,	carol	merrily!" The voices were brimming over with joy. "Why, my
17	are a little Christmas child, and we will name you '	carol	mother's Christmas Carol!" "What!" said Mr. Bird, coming in softly
18	Christmas child, and we will name you 'Carol'mother's Christmas	carol	!" "What!" said Mr. Bird, coming in softly and closing the
19	closing the door behind him. "Why, Donald, don't you think '	carol	is a sweet name for a Christmas baby? It came
20	tired as she could be, blushed with happiness. And so	carol	came by her name. Of course, it was thought foolish
21	family of Birds could not be indulged in a single	carol	; and Grandma, who adored the child, thought the name much
22	for Caroline. Perhaps because she was born in holiday time,	carol	was a very happy baby. Of course, she was too
23	had always to be taken by Mamma or nurse before	carol	could enjoy her supper; whatever bit of cake or sweetmeat
24	knew!" II DROOPING WINGS It was December, ten years later.	carol	had seen nine Christmas trees lighted on her birthdays, one
25	first, and hope was always stirring in Mrs. Bird's heart. "	carol	would feel stronger in the summer-time;" or, "She would
26	all too sure that no physician save One could make	carol	strong again, and that no "summer-time" nor "country air

Figure 6.1 Excel Contexts - The Birds' Christmas Carol

The rows highlighted in yellow pertain to the word carol as it relates to a song. The rows highlighted in green refer to the disabled character, Carol. When I take the words that surround the word "carol" in order to find the ten most frequent words, the results are impacted by the presence of the word "carol" as it relates to the type of song.

A similar obstacle was the idea that characters' names might not encompass every moniker used. Terms of endearment were not incorporated in my distant reading data analysis.

Bleak House features two disabled characters, Mrs. Smallweed and Grandfather Smallweed.

Mrs. Smallweed did not have a first name given, but could have gone by mom, mother, ma, etc. I only pulled context for "Mrs. Smallweed." Similarly, for Grandfather Smallweed, there was another character named "Mr. Smallweed," so I only pulled contexts for "Grandfather Smallweed." This resulted in what could potentially be an incomplete list of when the character was mentioned or present throughout the text.

The final and most infuriating hurdle that I continued to encounter was the constant discovery of additional works after I had moved on from creating my archive and had begun to analyze data. I analyzed and reanalyzed the data four times after reincorporating works that I had previously overlooked. All the questions that I had posed in section 3a were dependent upon using accurate data. Although the data set I had been using was large enough to provide reliable results, I was adamant that I could catch every work that featured a disabled character that is now in the public domain. Although a valiant mission, there did reach a point where a caveat was added that the data set with which I am working does not contain every work with a disabled character, a devastating caveat to admit.

6.1 Next Steps: Readers

Looking at the issue as a problem to be solved by consumers, the responsibility of pursuing adequate representation of disability in literature could fall on readers. Platforms such as *Goodreads*, *StoryGraph*, BookTok, and BookTube, give readers a relatively new power over how literature and novels are distributed and perceived. Hashtags and trigger warnings allow potential readers to vet or perform their own version of quality control.

If readers better understood the implication of inadequate disability representation, there is the potential that books penned by popular contemporary authors would then be held to a higher standard were they to include disabled characters in their stories.

6.2 Next Steps: Authors

It is important to promote adequate and meaningful representation of disabled people in writing. Oftentimes stereotypes and literary tropes prevail when popular, neurotypical, able bodies authors are holding the pen. It is important to consult experts in a field and conduct adequate research prior to authoring a disabled character.

Although it would be simpler to say that no able bodied or neurotypical author should write stories that feature disabled characters, that is not the goal. The goal is to normalize, distribute, and promote literature and texts that portray disabled characters in a meaningful way. In order to do that, experts in the field of literature need to reinforce the very existence and validity of the disabled character.

6.3 Next Steps: Academic Institutions

It is difficult to choose the primary party responsible for ensuring adequate disability representation in literature, but academic institutions hold a substantial amount of power. Works that are deemed "literary" or respectable texts, are often works that are written by neurotypical, able bodied authors. These authors are often center stage in academic institutions. Moving the spotlight to authors that are behind works that feature disabled characters and do so with intentionality, is critical in ensuring that adequate disability representation in literature reaches a broader audience of students as well as lay readers.

Additionally, there is a movement to incorporate a multicultural element to degree programs, one population continues to be overlooked: disabled people. The benefit of requiring multicultural studies to degrees encourages students and future career scholars to view an academic field through a new lens. These programs not only expose scholars to often overlooked views and stories but make space for scholars and voices from marginalized communities. These voices pave new paths for quality representation.

Academic institutions need to prioritize disabled voices in the journey to better disability representation. Having disabled scholars present in academic institutions will provide an additional layer of expertise and will be one step in the direction of spotlighting literature that adequately represents disability.

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