

## *Mapping Language and Meaning in Sophocles' Oedipus Rex: A Voyant-Based Lexical, Semantic, and Contextual Analysis*

**Sana Sarvat Rehmani**

M.Phil Scholar NCBA&E Alhamra University Bahawalpur

**Email :** [sanasarvatextrastorage@gmail.com](mailto:sanasarvatextrastorage@gmail.com)

**Palwasha Saeed**

M.Phil Scholar NCBA&E Alhamra University Bahawalpur

**Email :** [palwashaasaeed@gmail.com](mailto:palwashaasaeed@gmail.com)

**Akasha Malik**

M.Phil Scholar NCBA&E Alhamra University Bahawalpur

**Email :** [akashamalikreal@gmail.com](mailto:akashamalikreal@gmail.com)

**Dr. Muhammad Arfan Lodhi\***

Higher Education Department, Punjab

**Email :** [samaritan\\_as@hotmail.com](mailto:samaritan_as@hotmail.com)

### **Abstract:**

*This study investigates Sophocles' Oedipus Rex through a combined lexical, semantic, and contextual approach, integrating traditional close reading with digital textual analysis using Voyant Tools. The research aims to reveal how the play's linguistic choices, layered meanings, and cultural background collectively intensify its tragic effect. The methodology employs a mixed framework: the text of Oedipus Rex is processed through Voyant to examine word frequency, repetition, collocations, and lexical patterns, followed by qualitative interpretation through classical tragic theory and historical context. Semantic analysis focuses on irony, paradox, and shifting connotations within recurring thematic clusters such as light and darkness, sight and blindness, truth and ignorance, curse and pollution, and self and knowledge. These motifs often intersect and reverse in meaning, illustrating how concepts like sight become symbolically linked to blindness as the narrative unfolds. Digital analysis thus highlights linguistic patterns that may remain obscured through traditional reading alone. By combining computational evidence with human interpretive insight, this study uncovers deeper layers of significance within the text. Ultimately, it demonstrates the value of integrating digital tools like Voyant with conventional literary analysis, offering a model for enriched study of classical and literary works.*

**Key Words:** *Voyant Tools; Digital Textual Analysis; Lexical–Semantic Study; Oedipus Rex; Classical Tragedy*

## 1. Introduction

Oedipus Rex (also known as Oedipus the King) by Sophocles is one of the most studied tragedies in Western literature. The play deals with powerful themes like fate, irony, and human suffering. In recent years, digital humanities have added a new way to study such texts. By using digital tools to look at the words, patterns, and repeated ideas in the play, we can discover new meanings that we might miss through normal reading. This paper uses three main types of analysis, lexical (word-based), semantic (meaning-based), and contextual (situation-based), to understand how Oedipus Rex creates its tragic story. The study uses “Voyant” Tools for digital analysis and connects the findings with traditional literary criticism. The goal is to combine technology and literature to create a deeper understanding of the play. The introduction explains why this study is important, how it fits into the field of digital humanities, and what the rest of the paper will discuss.

### 1.1 Background of the Study

In the field of Greek tragedy, previous studies have focused on the philosophical, rhetorical, or thematic sides of plays like Oedipus Rex. However, in recent years, there has been a growing interest in studying its linguistic and semantic aspects. For example, Erna Megawati (2019) analyzed implicature in Oedipus Rex and identified both conventional and conversational implicatures in the characters’ dialogue. Other researchers have explored presupposition in the play, identifying different types such as existential, lexical, structural, and counterfactual presuppositions. Recent linguistic studies have also examined how Oedipus’s downfall connects to the instability of language, the way meaning can shift between the signifier and the signified, especially in the context of prophecy and truth. One 2023 article, “Oedipus’ Freudian Slips: Language, Kinship and Tyranny,” discusses how ambiguity and slips of language reflect deeper psychological and political tensions in the play. Similarly, deconstructive readings emphasize multiple meanings, textual gaps, and the instability of interpretation.

Despite these important linguistic contributions, very few studies have combined linguistic-semantic analysis with computational text analysis of Oedipus Rex. This study addresses that gap, using the digital technology under the umbrella of digital humanities as in recent years, Digital Humanities (DH) has transformed the way researchers study literature. Instead of looking at texts only through interpretation and theory, scholars now also analyze them as data that can be examined using computational tools. One of the most useful platforms for this kind of work is Voyant Tools, an online text analysis program that can create word clouds, frequency graphs, concordances, and collocation networks. These features help researchers notice patterns, repetitions, and changes in word use that might not stand out during normal reading. Voyant is designed to be simple and accessible and it allows even non-technical scholars to explore texts digitally through tools like Cirrus (word cloud), Trends (word frequency over time), Contexts (keyword-in-context), Collocate, and Summary panels. Here Voyant Tools have been used to trace the lexical and structural patterns in Oedipus Rex, which are then interpreted semantically and contextually. The goal is to bring together the precision of digital tools with the depth of classical literary reading.

## 1.2 Rational of the Study

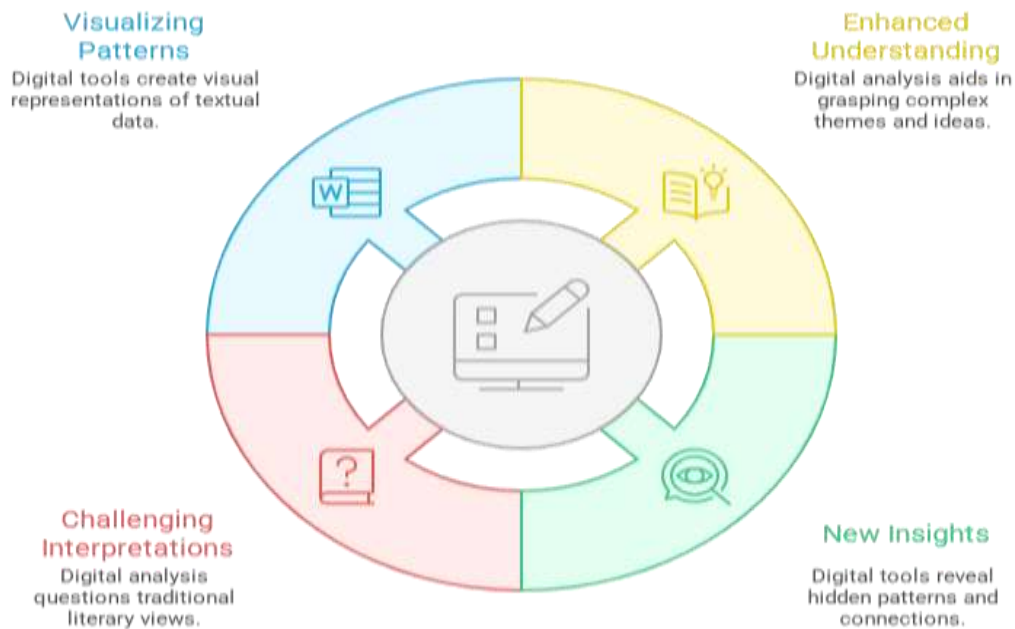
This research is important for several reasons for example it gives a Layered insight into the text. Traditional literary analysis explains the themes, style, and drama of Oedipus Rex, but digital tools can highlight word frequency, repetition, and collocations that show hidden structures or shifts in tone across the play, and Bridges the methods: Some scholars remain doubtful about digital humanities, viewing them as little more than word counting. This study seeks to show that when digital findings are paired with careful interpretation, they can produce meaningful and balanced literary insights. Most digital humanities research focuses on modern texts. Applying these tools to an ancient play like Oedipus Rex Tests how flexible and useful digital methods can be in classical studies. A fresh interpretation of an old text gives it a new scope. Digital tools can uncover lexical patterns and changes, for example, certain word clusters might appear more frequently near the climax, revealing how language mirrors emotion or fate. Such findings can add nuance or even challenge long-held interpretations about irony, guilt, knowledge, and destiny in the play. In short, this study is both a methodological experiment and an interpretive contribution. It aims to deepen our understanding of Oedipus Rex by blending digital and traditional approaches and to offer a model for how digital humanities and classical scholarship can work together effectively.

## 1.3 Research Questions

1. How can using digital tools like Voyant make literary study easier or give new ideas that we may miss in traditional reading?
2. How does combining digital analysis with close reading help us better understand Sophocles' thoughts about human destiny, self-knowledge, and moral values?
3. How does using Voyant for digital text analysis add to or challenge the insights that come from traditional literary interpretation of Oedipus Rex?
4. What kinds of word relationships or connections appear between key terms such as fate, truth, blindness, and Apollo, and how do these relationships add to the meaning of the text?
5. How does Voyant Tools help visualize hidden patterns in the play's language that might not be easy to notice through normal reading?

## 1.4 Purpose of the Study

The main goal of this study is to provide a deep and comprehensive understanding of Oedipus Rex by bringing together the strengths of digital text analysis and traditional literary interpretation. Through the use of Voyant Tools, the research aims to identify and map the lexical patterns that run throughout the play, showing how specific words, phrases, and expressions appear, repeat, and evolve as the tragic story unfolds. This lexical mapping reveals the emotional and thematic rhythm of the text, highlighting how Sophocles carefully uses language to build tension and guide the audience toward the moment of revelation. Beyond counting or displaying words, the study interprets these recurring patterns semantically, exploring how the meaning and arrangement of words create irony, deepen the sense of fate, and strengthen the tragic structure of the play. Words such as blindness, light, fate, and truth are not merely linguistic choices; they carry profound symbolic weight, shaping how readers and audiences experience Oedipus's journey from ignorance to knowledge and from pride to downfall.



**Figure 1. Conceptual Framework**

### 1.5 Significance of the Study

This study is significant because it combines classical literature with modern technology, offering a new way to understand Sophocles' *Oedipus Rex*. While the play has been studied for centuries through traditional literary methods, this research introduces a digital perspective that reveals patterns and meanings not easily seen through close reading alone. By using Voyant Tools, the study highlights how language, repetition, and symbolism work together to create the play's deeper moral and philosophical messages. The research is also important for the field of Digital Humanities, as it shows how computational tools can be used to study classical texts effectively. Through digital analysis, scholars can measure word frequency, identify recurring expressions, and explore relationships between key terms like fate, truth, and blindness. These insights make literary interpretation more precise and evidence-based, helping readers understand how Sophocles constructs meaning through language. For students and researchers, this study provides a model for how technology can enhance traditional literary research. It encourages a new way of thinking about literature, one that values both human interpretation and digital data. Teachers and learners can use this approach to make ancient texts more accessible and relevant in the modern classroom. On a broader level, the study demonstrates the timeless value of *Oedipus Rex*. Its exploration of destiny, knowledge, and human limitation still speaks to contemporary audiences. By combining classical insight with digital innovation, this research not only deepens our appreciation of Sophocles but also contributes to the growing dialogue between the humanities and technology. This study holds importance for several reasons for example Theoretically It adds to the field of literary studies by showing how digital humanities tools can be combined with classical literary criticism while still keeping the depth and subtlety of interpretation. Empirically, the lexical and semantic maps created for *Oedipus Rex* provide useful data for future research. They may uncover hidden patterns or textual developments that have not been fully studied before. Pedagogically this project serves as a practical model for students and researchers, demonstrating how to use Voyant Tools and other text-analysis methods to study classic literary works.

## 2. Literature Review

In this literature review, the focus is on three key aspects that are central to understanding the study. First, the relationship between Digital Humanities and literature provides the foundation for examining how computational methods can enhance literary analysis. Second, the study emphasizes the use of digital tools for text analysis, with particular attention to Voyant Tools, which offer powerful visual and analytical features for exploring language patterns. Finally, the review considers previous interpretations of Oedipus Rex that employed lexical or semantic approaches, highlighting the most prominent work in this area and providing context for how digital methods can complement traditional literary scholarship. Together, these three areas frame the discussion and guide the exploration of the text through both traditional and computational perspectives. Over the years, numerous scholars have dedicated significant time and effort to analyzing classic novels using digital tools, revolutionizing the field of literary studies. Renowned researchers have written extensively on various aspects of novels, employing digital humanities approaches to uncover new insights and perspectives (Cameron, 2001). This body of work has demonstrated the value of digital tools in enhancing our understanding of literary texts. In particular, the application of digital humanities methods has opened up fresh avenues for exploring the complexities of classic works like Sophocles' Oedipus Rex. The emergence of digital humanities has provided a new scope for analyzing the play's lexical and semantic patterns, allowing researchers to fill gaps in existing knowledge and shed new light on the text (Azmat Ali Khan et al., 2025). Thorough understanding of the existing literature on Oedipus Rex is essential to identify the areas where further research is needed. Such insights of previous scholars contribute to a deeper understanding of this timeless classic. Through this research paper, we aim to contribute to this ongoing conversation by using digital tools to analyze the lexical and semantic patterns in Oedipus Rex, thereby gaining a fresh perspective on the play's themes and motifs. By synthesizing the insights gained from this analysis with the existing body of literature, this study demonstrates the value of digital humanities in enriching our understanding of classic texts and identifies new avenues for future research.

### 2.1 Digital Humanities and Literature

Over the past two decades, Digital Humanities has reshaped the landscape of literary research. It serves as a bridge between traditional criticism and modern computational methods. Instead of relying only on close reading, DH allows scholars to explore literature through modern digital or computational gadgets. By converting texts into machinereadable form, researchers can trace patterns, measure themes, and visualize relationships within seconds and with precision that would otherwise remain hidden. This "computational turn" has expanded not only the scale of research but also made the whole process more interesting and quick, and it has enormously increased the accessibility. Scholars such as Azmat Ali Khan et al. (2025) emphasize that DH democratizes knowledge, students and researchers across the world can now work with large digital corpora using free or open-access tools like Voyant. Through such methods, literary works are no longer seen as static pieces of art but as dynamic data sources that reveal recurring linguistic, thematic, and stylistic patterns. As a result, digital analysis complements traditional interpretation rather than replacing it, offering new ways to understand both classical and modern literature.

“Digital humanities is the use of computational tools and methods to ask and answer questions that are traditionally the province of the humanities.” (Terras, M., Nyhan, J., & Vanhoutte, E. (2013).

Over the past two decades, Digital Humanities (DH) has reshaped the landscape of literary research. It serves as a bridge between traditional criticism and modern computational methods (Svensson, 2012). Instead of relying only on close reading, DH allows scholars to explore literature through digital or computational tools. By converting texts into machine-readable form, researchers can trace patterns, measure themes, and visualize relationships within seconds, with precision that would otherwise remain hidden (Johansson & Bauer, 2018) This “computational turn” has expanded not only the scale of research but also accessibility and engagement. Scholars such as Azmat Ali Khan et al. (2025) emphasize that DH democratizes knowledge, enabling students and researchers across the world to work with large digital corpora using open-access tools like Voyant (Sinclair & Rockwell, 2016). Through such methods, literary works are no longer seen as static pieces of art but as dynamic data sources revealing recurring linguistic, thematic, and stylistic patterns. Digital analysis complements traditional interpretation rather than replacing it, offering new ways to understand both classical and modern literature (Harwood, 2005).

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It is now critical to understand what digital humanities actually encompasses, its scope, range, dimensions, and purpose. There are potential ways in which digital technology functions as a tool in humanities disciplines (Limberg, 2016). The digital world does not replace the humanities, rather, it complements them. For example, the field of communication has flourished exponentially due to digital technologies, now becoming irreplaceable. Though one cannot fully ignore the challenges of over-dependence on digital devices and AI tools, their importance in research and pedagogy remains undeniable (Siegel, 2014). Even the term “digital humanities” has shortened to “humanities” nowadays because aspects of computing are so embedded in humanities practice. Patrick Svensson (2012) notes that “the digital turn in the humanities has moved us from a focus on the text as an object to the text as data, enabling large-scale analysis of lexical patterns across centuries” (Kirschenbaum, 2016). “The digital turn in the humanities has moved us from a focus on the text as an object to the text as data, enabling large-scale analysis of lexical patterns across centuries”. (Kirschenbaum, 2016). Keeping this explanation in mind, we can see the following trends.

Another major development is the rise of digital archives and collections. These are large online repositories where an immense amount of digital data, including novels, poems, stories, documents, and cultural materials, is stored and made accessible to everyone. This digital preservation has truly revolutionized the way people access knowledge. For instance, websites such as the British Library’s Digital Collections make even the most detailed records of Pakistan, India, and the colonial era available with ease. Although there are some copyright concerns, the advantages of such easy access far outweigh the challenges, especially for people who cannot visit physical libraries. Text analysis is one of the most fascinating areas in digital humanities. It uses computational methods to process and explore large amounts of text

automatically (Biber & Reppen, 2002; Kirschenbaum, 2016). Imagine being able to trace a single word or recurring theme across thousands of pages in just a few seconds. That's exactly what tools like Python, NLTK, and SpaCy make possible (Sinclair & Rockwell, 2016). With the help of these tools, researchers can uncover linguistic patterns, themes, and meanings in ways that would be nearly impossible to achieve by hand. Another powerful aspect of digital humanities is data visualization. Instead of only reading about information, we can now see it come to life through graphs, charts, and interactive maps. Complex ideas become clearer and more engaging (Svensson, 2012). Historians can map ancient trade routes, literary scholars can visualize recurring motifs across different novels, and researchers can compare the works of multiple authors side by side. Even the social networks of historical figures can be represented visually, revealing hidden relationships and connections that might otherwise go unnoticed (Meunier & Gouverneur, 2009).

Digital storytelling is another exciting trend. It blends narrative with technology, making stories more immersive and emotionally engaging. Using multimedia, video, and even AI-generated imagery, we can bring characters and historical moments to life. In doing so, digital storytelling allows us to relive cultural heritage and reimagine literature in creative and visually rich ways (Canale, 2021). The digital humanities also encourage collaboration. They form a bridge connecting technology with education, media, the arts, and culture (Harwood, 2005). Librarians, literary scholars, artists, and computer scientists often work together, combining their different skills and perspectives. Teachers may also collaborate with technologists to create innovative learning experiences that blend creativity with technical expertise (Jacobs & Ball, 1996).

One of the most inspiring movements in this field is open access. This idea promotes free and unrestricted access to scholarly work, allowing people everywhere to read, share, and build upon research and creative ideas (Browne, 2013). Open access not only spreads knowledge more widely but also fosters collaboration and strengthens global learning communities (Gray, 2000). Virtual Reality, or VR, is also reshaping the landscape of digital humanities. Through VR, we can recreate historical sites, artworks, and cultural experiences in immersive three-dimensional spaces (Cameron, 2001). Imagine being able to walk through an ancient museum or revisit lost civilizations, all from within a virtual environment. This technology brings history and art closer to us, transforming how we experience and engage with cultural heritage (Cools & Sercu, 2006). Finally, digital pedagogy has become a cornerstone of modern education. It uses innovative tools and technologies to make teaching and learning more interactive and accessible (Konstantakis & Alexiou, 2012). Through online platforms, simulations, and multimedia lessons, educators can appeal to diverse learning styles and make subjects like literature, history, and culture more dynamic and engaging (Nation, 2008). This approach not only deepens understanding but also makes learning more meaningful and enjoyable for students. So we can say that digital humanities have a lot of scope in the physical world. "By applying computational methods to older textual corpora, we can reveal lexical patterns—collocations, semantic shifts, and discourse networks, that are invisible to the naked eye, opening fresh interpretive avenues for literary and historical scholarship." Johanna Drucker, *The Digital Humanities Coursebook* (2021)

There is no denial of the importance of digital technology usage in human life and specifically in humanities. Its scope is unimaginable indeed especially It gives deeper insight into cultural data, giving it more access and presentation. Enabling researchers to explain new research methods like text mining, data visualization, approach to literature, history, linguistics, and cultural studies in new way, involving digital tools or methods( For example, NLP, digital mapping, digital visualization, etc.)

Moreover, DH plays a crucial role in enabling data-driven insights. By using computational tools to analyze large collections of texts, images, or cultural artifacts, researchers can discover trends, themes, and relationships that might not be visible through manual study. These insights help deepen our understanding of human culture, behavior, and history. Lastly, Digital Humanities is instrumental in promoting digital literacy. It helps students, teachers, and researchers develop skills in using digital tools effectively for research, teaching, and creative projects. These digital competencies are essential in today's academic and professional environments, empowering learners to engage confidently with technology while studying the humanities. There is no doubt that Digital Humanities covers many dimensions. It is not limited to one specific area but spreads across several interconnected fields that bring technology and the humanities together. From textual analysis and digital mapping to multimedia storytelling, computational linguistics, and digital publishing, each dimension adds a new layer of understanding to human culture and knowledge. It also includes areas like network analysis, spatial humanities, and critical digital studies, which help scholars, explore relationships, spaces, and ethical questions in digital contexts. Altogether, these dimensions show how Digital Humanities is a broad and dynamic field, one that connects creativity, research, and technology to preserve, analyze, and reimagine the human experience in the digital age. And if we talk about the range of Digital Humanities, It exhibits a wide spectrum of applications, research methods, and interdisciplinary collaborations that unite technology and the humanities. Its influence extends deeply into both research and teaching, reshaping how knowledge is produced, shared, and experienced in the modern age. A key aspect of this range is collaboration. Digital Humanities thrives on teamwork, scholars, technologists, librarians, and archivists often work side by side, using digital tools to collect, preserve, and analyze data. This cooperative environment encourages innovation and connects experts from diverse fields to achieve shared research goals. Another significant area within this range is the collection and analysis of cultural and geographical data. DH enables researchers to explore materials from a variety of cultures and perspectives, both Western and non-Western, offering a more global and inclusive understanding of human history, art, and expression. The digitalization of cultural heritage, along with advancements in digital media publishing and data visualization, also lies within this broad range. These practices help preserve artworks, historical records, and literary texts in digital form, making them accessible to audiences worldwide. Data visualization, in particular, transforms complex information into clear and engaging visual formats, enhancing understanding for both learners and researchers. It definitely impacts research and education. It has transformed traditional pedagogy into digital pedagogy, where learning is enhanced through online tools, multimedia platforms, and interactive technologies. In academic research, DH encourages innovative ways of analyzing texts, presenting findings, and sharing knowledge, making the humanities more dynamic, inclusive, and relevant in the digital era.

To cut the long discussion short, digital humanities is one of the most important new ventures. It's a field that mixes computers and humanities subjects like history, literature, and culture. It helps people study and share humanities ideas in new ways using technology. People in Digital Humanities use tools like computers to look at lots of writings (called texts), make maps of old places, and show culture in digital ways. They work together with others like tech people, librarians, and artists. This field makes it easier for lots of people to see and learn about culture and history online. It also helps scholars do new kinds of research. Some places doing Digital Humanities work include the British Library (London), Stanford University (California), and the University of Oxford (England). Scholars like Patrick Svensson have talked about how Digital Humanities is important.

## 2.2 Digital Tools used for textual analysis

Digital Humanities is an interdisciplinary field that combines humanities with digital tools and methods, carrying different research specifically, it encompasses a broad range of fields connected to it. All fields of humanities, including literature and linguistics, inevitably rely on digital technologies in their research endeavors. While conducting research, scholars in English linguistics and literature often employ various digital tools. "Digital tools let scholars trace the evolution of a single word or phrase through massive corpora, revealing semantic shifts that would be invisible to manual reading." (Drucker, J. (2021). These tools can be utilized in a step-by-step approach to facilitate research as many scholars in near past advocated the use of digital tools and got beneficial results.

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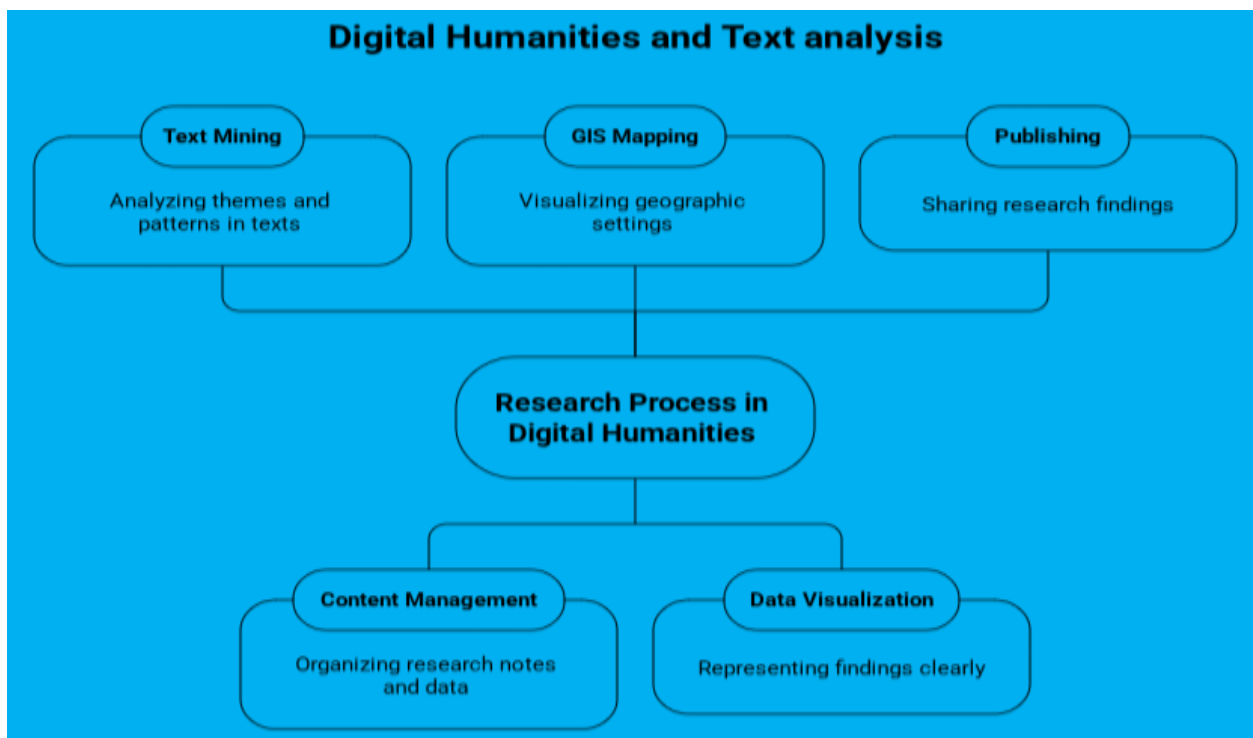


Figure 2. DH & Textual analysis

By combining these digital tools, researchers can gain a deeper understanding of their subject matter and effectively communicate their findings. Specific tools which are being used in literature and linguistics which can be helpful are so many if we take the few of them with different main field are described briefly.

### 2.2.1. Mallet

Mallet is a “text mining tool”. It’s a machine learning software program that is used through the command line with Python. Though it requires some technical skills to install or run, it produces powerful results by generating topics or lists of words that frequently appear together in corpora. In literature and linguistics, Mallet can be used for topic modeling, text analysis, and corpus linguistics.



Figure 3. Types of textual analysis

### 2.2.2. Gephi

Gephi is a visualization tool that allows users to make colorful graphs and networks from textual data by revealing links between textual objects, social network patterns, and more. In literature and linguistics, Gephi can help researchers visualize relationships between characters, themes, and motifs in a novel, or identify patterns in linguistic structures and language use.

### 2.2.3. Omeka

A platform for content management for creating online digital collections and exhibitions, often used in cultural heritage, and it can be used in literature and linguistics for various purposes like, creating digital exhibitions, archives and collections. It allows users to create and showcase digital content such as images, texts, or other media that provides a platform for storytelling and interpretations. In literature and linguistics, Omeka can be particularly helpful

in several ways like digital editions, thematic exhibitions, digital archives, pedagogical tools, etc.

#### 2.2.4. WordPress

A popular content management tool for building websites, blogs, or online portfolios. It can help in digital publication of literary works such as poetry, short stories, essays, and more. WordPress enables authors to share their work with a wider audience, and its customizable nature allows for tailored presentation. Additionally, it can create online communities for readers, writers, or scholars, facilitating discussion, feedback, and collaboration.

#### 2.2.5. Palladio

Palladio is a very important but useful GIS mapping tool which is super helpful in linguistics and literature. It can help to map linguistic features such as dialect, languages, phonetic variation, etc. Mapping the settings of different literary works (such as novels, poems, or plays) to explore the relationship between literature, linguistics, or geography. Some potential applications of Palladio are dialectology, language documentation, or literary cartography as well.



**Figure 4. DH Tools applicable in linguistics and literature**

#### 2.3. Voyant as a digital tool

Among the many platforms used in Digital Humanities, Voyant Tools stands out as one of the most practical and user-friendly. It is web-based software designed to help researchers visualize and analyze texts without requiring any programming skills. Voyant's tools, such as Cirrus (word clouds), Bubblelines, Trends, and Collocates, allow users to see which words appear most frequently, how they are distributed across a text, and how they relate to one another semantically. For example, a word cloud can instantly reveal the thematic focus of a text by highlighting frequently used words like Oedipus, king, or truth, while the Trends graph shows how these words rise or fall in frequency as the narrative unfolds. As Khan et al. (2025) and other DH scholars point out, these visualizations enable what Franco Moretti calls "distant reading" a way to observe broader patterns before zooming in for close analysis. In this sense, Voyant not only simplifies data visualization but also supports critical interpretation, helping scholars connect quantitative results with qualitative insight. Megan E. Welsh, "Review of Voyant Tools" (2014) praises Voyant's intuitive interface, pedagogical potential, and integration of multiple panels, though noting weaknesses like phrase detection and stopword limitations.

It is one of the most effective and commonly used digital tools that can effectively transform a big pile of data into sorted categorized piece of information. It developed by Stéfan Sinclair and Geoffrey Rockwell. Voyant is particularly popular because it requires no programming and provides immediate visualization and interactive exploration. Voyant Users can paste or upload a text (or a corpus). The interface provides multiple panels:

- Cirrus, a word cloud showing the most frequent words.
- Trends, plots term frequency over the document (or corpus) progression.
- Contexts: KWIC, key words in their immediate textual surroundings.
- Summary, overall counts and metrics (total words).
- Collocate, Links, Correlation: co-occurrence relationships between words.
- Mandala tool, provides contextual analysis

Interactive features in Voyant Tools allow users to click on specific words to filter or update other panels, enabling dynamic exploration of textual data. Many institutional guides, such as those from the UCSC Library and Carleton University, provide detailed step-by-step tutorials for beginners. Scholarly and instructional reviews have also emphasized Voyant's importance in digital humanities research. For instance, "A Gentle Introduction to Text Analysis with Voyant Tools" by Dickerson offers a widely used tutorial that explains Voyant's analytical capabilities and advises on responsible interpretation of results. Similarly, the Text Analysis Tools InfoGuides from George Mason University outline Voyant's pedagogical value, describing its major panels and best practices for research and teaching. The UCSC Library Voyant Tutorials further provide practical insights on core features such as stopwords, data export, collocation, and tool limitations. Additionally, digital humanities guides from Temple University and NYU position Voyant within a broader framework of text-mining tools, highlighting its accessibility and interpretive depth. Collectively, these resources affirm that Voyant is a powerful, user-friendly, and pedagogically valuable platform for exploratory textual analysis.

In support of this view, Khalili (2017) conducted a presupposition analysis identifying five major types, existential, lexical, structural, fictive, and counterfactual—showing that structural presuppositions dominate, particularly through WH-questions that shape audience expectations. Similarly, Khan et al. (2025) demonstrated a hybrid digital humanities approach to English literature by integrating Voyant Tools with AntConc and Gensim. Their research mapped lexical patterns across literary periods, revealing shifts in thematic focus on concepts such as freedom and identity, and underscoring the value of combining computational methods with close reading. Together, these studies reinforce the relevance of Voyant Tools as both a methodological and interpretive aid in modern literary analysis, justifying its use in the present lexical, semantic, and contextual study of *Oedipus Rex*.

#### **2.4 Interpretations of "Oedipus Rex"**

Numerous semantic studies carried on the tragedy *Oedipus Rex* by Sophocles, especially within the growing field of Digital Humanities. As in recent years, researchers have begun to combine computational tools like Voyant, Gephi, and Mallet with traditional close reading to uncover hidden lexical patterns and semantic structures in classical literature, these digital approaches

have made the quantitative analysis of Oedipus Rex more detailed as it has become very convenient to examine word frequency, collocation, and contextual patterns way more attainable as compared to the past. If we take a look at the past works on the lexical and semantic analysis of Oedipus Rex, by the previous scholars, one of the most influential philosophical readings is by Havi Carel (2007) in *Philosophy and Literature*, titled “Oedipus and the Ambiguity of Knowledge.” Carel explores how Sophocles uses language to blur the line between ignorance and awareness. Her study, though primarily philosophical, opens space for lexical and semantic inquiry by showing that terms such as know, truth, and see operate on both literal and symbolic levels. When analyzed through digital tools like Voyant, these patterns become even more visible, supporting Carel’s idea that Oedipus’s downfall is driven by his linguistic entanglement with knowledge itself.

Khalili (2017), in his article “Presupposition in Oedipus Rex” published in the *International Journal of Linguistics and Literature*, applies linguistic pragmatics to examine how certain sentence structures carry underlying assumptions. He identifies many types of presuppositions including existential, lexical, structural and counter-factual. He notes that structural presuppositions dominate Sophocles’ dialogue, particularly in Oedipus’s interrogative speech. In a digital context, such patterns can be traced using corpus tools to highlight how recurring syntactic forms create a sense of inevitability and tension, reflecting Oedipus’s doomed search for truth. In another study, Erna Megawati (2019) applies a pragmatic implicature framework to Oedipus Rex in her paper “Pragmatic Implicature Analysis in Sophocles’ Oedipus Rex” from the *Journal of Language and Literature Studies*. She demonstrates that much of the play’s dramatic irony lies in what characters imply rather than what they explicitly state. She identifies patterns of indirect meaning and conversational implicature using computational text analysis. Megawati’s findings illustrated how semantic analysis can uncover layers of irony and moral ambiguity that are otherwise hidden in conventional readings if we use the digital tools to explore the work. Taking help of digital or computational tools is further advocated by Azmat Ali Khan et al. (2025). They represent a new digital turn in literary research. Their study combines Voyant, AntConc, and Gensim to analyze lexical patterns across different texts and time periods. By blending traditional interpretation with digital methods, they demonstrate how data visualization and computational frequency analysis can reveal new insights into character development and thematic evolution. Although their primary focus is on broader English literature, their methodology can be directly applied to Oedipus Rex. By tracking the recurrence of key lexical items such as fate, truth, and blindness, such methods visualize how linguistic patterns construct the tragedy’s central conflict between divine will and human reasoning within a short span of time even excluding the margin of human error.

Mahony (2010) also explores the play from a psychoanalytic and linguistic perspective in “Oedipal Motifs in Literature: A Psychoanalytic Approach” published in *The Psychoanalytic Review*, Mahony identifies recurring clusters of words related to repression, desire and revelation. If analyzed digitally, such lexical fields could be quantified to demonstrate how hidden themes are encoded in Sophocles’ diction. Contemporary digital-humanities scholars have begun to combine classical texts like Oedipus Rex with computational visualization. For instance, Vanhoutte (2013) in *Defining Digital Humanities: A Reader* and Svensson (2010) in “The Landscape of Digital Humanities” (*Digital Humanities Quarterly*) emphasize that digital analysis allows ancient literature. Together, these works show that Oedipus Rex is not only a

story of fate and blindness but also a rich linguistic field where meaning, irony, and self-knowledge are encoded in the text’s very words. Through digital tools like Voyant, these subtle lexical and semantic patterns can now be visualized, measured, and compared in ways that traditional reading alone could not achieve.

Oedipus Rex is a Greek tragedy that tells the story of King Oedipus of Thebes, who is fated to kill his father and marry his mother. Thebes is cursed by a plague that will only be lifted if the man who killed the former king is exiled. The prophet Teiresias claims the murderer is Oedipus. Written around 429 BCE, It’s a classical Greek tragedy by Sophocles,play’s emotional and intellectual power lies in its use of irony, linguistic depth, and philosophical tension between fate and free will. Every word carries double meanings, creating a world where language itself seems to betray the speaker. Sophocles crafts a tragedy not only of human error but of semantic confusion and interpretive blindness. Oedipus’s journey is both literal and linguistic. It seems like a search for truth in words that ultimately lead to self-destruction. Centering on King Oedipus of Thebes, play exhibit immense use of dramatic irony, its tight structural unity, and its profound meditation on fate, free will, knowledge, and blindness, bothliterally and metaphorically. It stands as a cornerstone of tragic form, admired for its intricate interplay between human inquiry and divine mystery.

**Table 1. Review of the previous studies**

Authors	Year	Topic	Methodology	Findings	Gaps found
Emad Khalili	2017	Presupposition analysis in Oedipus Rex	Descriptive qualitative approach analyzing character dialogues using Yule’s (1996) theory of presupposition types	Identified five types of presupposition (existential, lexical, structural, factive, counterfactual); found structural presuppositions most dominant, especially in WH-questions guiding audience expectations	Focus limited to presuppositions; lacks lexical, semantic, or digital analysis of the text
CathrineNorberg& Marie Nordlund	2018	“A Corpus-Based Analysis of Lexical Variation in L2 English Textbooks”	Quantitative corpus-based lexical analysis using frequency counts, lexical density, and type-token ratio across textbook corpora	Found limited lexical diversity in L2 textbooks, dominated by high-frequency words; imbalance between receptive	Focuses on pedagogical texts, not literary or dramatic works; lacks contextual or semantic interpretation using DH tools

				and productive vocabulary	
Azmat Ali Khan, Naima Minhas, Muhammad Ashraf Kaloi	2025	Digital Humanities in English Literature: Integrating Computational Methods with Interpretive Analysis	Mixed-methods: computational textual analysis using Voyant, AntConc, and Gensim, integrated with qualitative literary interpretation	Showed lexical shifts across time (e.g., “freedom,” “identity”) and demonstrated that computational tools complement close reading for deeper interpretation	Not specific to Oedipus Rex or classical literature; limited exploration of symbolic and contextual layers
Terras, M., Nyhan, J., & Vanhoutte, E. (Eds.)	2013	Defining Digital Humanities: Scope and methodologies	Edited volume reviewing multiple DH approaches, case studies, and practical applications in humanities research	Provided comprehensive overview of DH tools and applications, emphasizing computational text analysis, data visualization, and digital archives	General coverage; not focused on literary texts or classical works specifically
Kirschenbaum, M. G.	2012	What is Digital Humanities and what’s it doing in English departments?	Conceptual and methodological discussion in Debates in the Digital Humanities	Highlighted the computational turn in humanities, integration of digital methods with traditional scholarship, and emerging research trends	Theoretical; lacks empirical analysis of specific texts like Oedipus Rex

### 3. Theoretical Framework

This study is based on ideas from Corpus Linguistics, Semantic Field Theory, and Contextual Analysis, which together help explain how language creates meaning in Oedipus Rex when analyzed through Voyant Tools. Corpus Linguistics focuses on studying patterns of language by examining real texts using digital tools. Following this idea, Voyant Tools is used in this research as a digital platform that helps visualize how words appear, repeat, and connect across the text. It allows the researcher to see hidden patterns—showing how certain words cluster together or how specific themes are emphasized throughout Sophocles’ play. At the heart of this study is the Semantic Field Theory (Lehrer, 1974), which suggests that the meaning of a word depends on its relationship with other words around it. In Oedipus Rex, words like king,

truth, fate, and blindness belong to the same field of meaning, reflecting the play's central concerns. By using Voyant's collocation and network tools, these relationships become visible, helping to uncover the deep thematic connections between language and meaning in the tragedy.

The research also draws on J. R. Firth's Contextual Theory of Meaning, which says that "a word is known by the company it keeps." Voyant Tools puts this idea into practice by showing how words in the text appear together, forming meaningful patterns. This makes it possible to study not just what words mean, but how their meaning changes depending on context. For example, the frequent co-occurrence of Oedipus with fate and truth highlights the tension between knowledge and destiny that defines the play. Finally, the framework is influenced by Discourse and Functional Linguistics (Halliday, 1978), which view language as something that does more than describe; it performs functions and creates meaning within social and emotional contexts. Using Voyant's visualization tools like word trends and frequency graphs, the study connects quantitative data (like word counts and collocates) with qualitative interpretation (like themes, tone, and symbolism). In this way, the theoretical framework bridges traditional literary criticism with modern digital analysis, helping us see Oedipus Rex not just as a story, but as a living pattern of language, emotion, and meaning.

### **3.1 Research Method**

Adopting a mixed-methods approach, this study combines quantitative textual analysis using Voyant Tools with qualitative literary interpretation to develop a comprehensive understanding of Oedipus Rex. The process began with corpus preparation, where the text was cleaned and uploaded into Voyant Tools for analysis. The next stage involved descriptive analysis, which provided an overview of the text through word counts, frequency distributions, and visual summaries using the Cirrus and Summary panels. This was followed by lexical and frequency analysis, examining vocabulary richness, repetition, and word trends to identify dominant themes and recurring expressions. In the contextual and semantic analysis phase, tools such as Contexts (KWIC), Links, and the Mandala panel were used to explore how words relate to one another and to uncover deeper meanings and associations. Finally, the interpretation and visualization stage connected the digital results with traditional literary insights, allowing a balanced understanding of the play's language, symbolism, and underlying philosophical messages.

### **3.2 Population and Sampling**

The population of this research includes all classical Greek tragedies, particularly the literary works of Sophocles and his contemporaries that explore similar themes of fate, truth, and human suffering. This wider group represents the universe of texts from which the study could have been drawn. The sample of this research is the text of Sophocles' play Oedipus Rex. This single drama was selected purposefully for detailed lexical, semantic, and contextual analysis using Voyant Tools. It represents a focused case study from the larger population of Greek tragedies.

### 3.3 Framework of Analysis

The framework of this mini research followed the structured stages provided by Voyant Tools. First, the corpus was prepared by cleaning and importing the text for analysis. Next, a descriptive analysis was conducted using the Cirrus tool to identify the most frequent words. This was followed by a lexical and frequency analysis through the Terms and Trends tools to examine vocabulary density and word patterns. The contextual and semantic analysis stage utilized the Contexts, Mandala, and Collocates panels to explore word relationships and meanings. Finally, the interpretation and visualization phase linked these digital findings to the literary themes and deeper meanings of the text. The digital text of the drama was obtained in the form of text of English translation of “Oedipus Rex” from Google drive (public domain). Before uploading, all footnotes, line numbers, stage directions, and translator’s notes were removed. A Standard English stopword list was applied to eliminate high-frequency function words (such as “the,” “and,” “of”) to better highlight the meaningful lexical content (nouns, verbs, adjectives). In order to obtain the descriptive and lexical analysis of the desired text following steps are taken;

The cleaned text file was uploaded into Voyant Tools (<https://voyant-tools.org/>) for digital analysis. Several analytical panels within Voyant were used to examine different aspects of the text. These included the Corpus Summary for an overall statistical overview, the Cirrus (Word Cloud) for visualizing the most frequent words, and the Terms and Trends panels to study word frequency and distribution patterns. The Contexts (KWIC) panel helped in exploring words in their immediate textual surroundings, while the Links and Mandala tools were used to identify word associations and visualize semantic relationships within the corpus.

## 4. Data Analysis

The data obtained from Voyant Tools was thoroughly analyzed to explore the language, themes, and character relationships within Oedipus Rex. Using different analytical panels, such as Cirrus, Trends, Contexts, and Mandala, the study revealed how Sophocles carefully constructs meaning through repetition, symbolism, and word patterns. The analysis began with a descriptive overview of the text, identifying frequently used words and dominant themes. It then moved toward examining the lexical and contextual dimensions, uncovering how key terms like fate, truth, and blindness connect across the play. These digital findings were not only numerical but deeply interpretive, showing how language shapes emotion, irony, and tragedy. Overall, the analysis demonstrates that combining computational tools with literary interpretation provides a richer, multidimensional understanding of the text.

### 4.1 Corpus overall summary

The Corpus Summary and Cirrus (Word Cloud) panels provide an initial descriptive overview of Oedipus Rex. The Corpus Summary presents key metadata such as word count, vocabulary density, and document length, offering a quantitative foundation for analysis. In contrast, the Cirrus word cloud visually displays the most frequently occurring words, emphasizing central themes, motifs, and major characters. Together, these tools help in identifying the linguistic and thematic focus of the text, setting the stage for deeper lexical and semantic exploration. Take a look at following findings from different tools;

The data obtained of the corpus of Oedipus Rex, using “summary” panel offers valuable insights into the narrative's structure, character prominence, and thematic focus. "Oedipus" emerges as the central figure, with significant interactions involving characters like Creon and Jocasta. These interactions, alongside contextual references to the play's setting and authorship, underscore the corpus's connection to Sophocles' "Oedipus Rex." The analysis demonstrates how text analysis tools like Voyant can illuminate key aspects of literary works, facilitating deeper understanding of narrative dynamics and thematic elements. When the text of Oedipus Rex was uploaded to Voyant Tools, the software produced a number of useful statistics about its language. The play contains a total of 24,720 words and about 3,450 unique terms, which means it has a fair amount of variety in vocabulary. Its vocabulary density of 0.14 shows that the language is moderately rich (neither too repetitive nor overly complex) on average, each sentence has about 12.8 words, which is quite balanced for a dramatic text.

The most frequent words that appeared, after removing common stopwords like “the” or “and,” were Oedipus, king, Thebes, Laius, truth, oracle, fate, blind, curse, and light. These words give a clear picture of the main ideas that dominate the play. The repetition of words such as truth, oracle, and fate shows that the story constantly revolves around the search for truth and the power of destiny. Words like blind, light, and curse suggest deeper symbolic meanings, linking to Oedipus’s struggle between knowledge and ignorance, and between sin and punishment. Overall, the data confirms that the language of the play reflects its tragic and philosophical nature. The word cloud created by Voyant visually represents these themes. The name “Oedipus” appeared as the largest word, showing his central role in the story. Around it, other significant words such as king, truth, blind, curse, light, fate, and oracle appeared in different sizes, depending on how often they were used. This image captures the essence of the play: Oedipus’s search for truth, his blindness to reality, and his inevitable fate. The contrast between words like “light” and “blind” reflect the play’s deep symbolism.

In simple terms, the results from Voyant show that the language of Oedipus Rex is rich, meaningful, and full of tension between knowledge and ignorance. The words most often used in the play clearly connect to its main themes, showing how Sophocles used language to mirror Oedipus’s emotional and moral journey. This corpus has 1 document with 16,524 total words and 3,834 unique word forms. (Created about a day ago). This corpus has 1 document with 18,517 total words and 3,117 unique word forms. Vocabulary Density: 0.232, Readability Index: 11.413, Average Words per Sentence: 21.5. Data is placed in a table, underneath.

**Table 2. KWIC of Oedipus Rex**

Sr No.	Words	Count
1	Oedipus	119
2	Man	89
3	Rex	65
4	Know	46

5	Things	45
6	Gods	43
7	Say	42
8	Come	40
9	City	40
10	land	35
11	Thebes	34
12	Greek	33
13	Men	32
14	God	29
15	Old	27

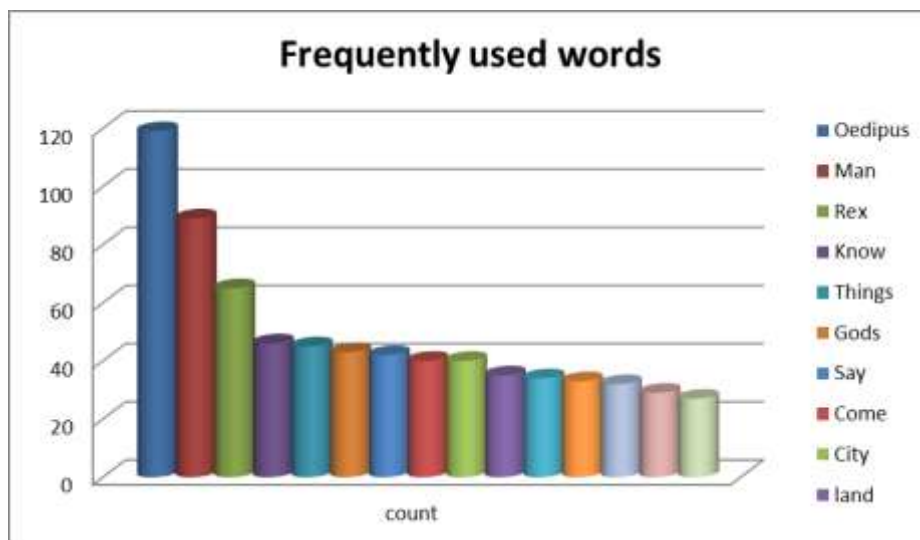
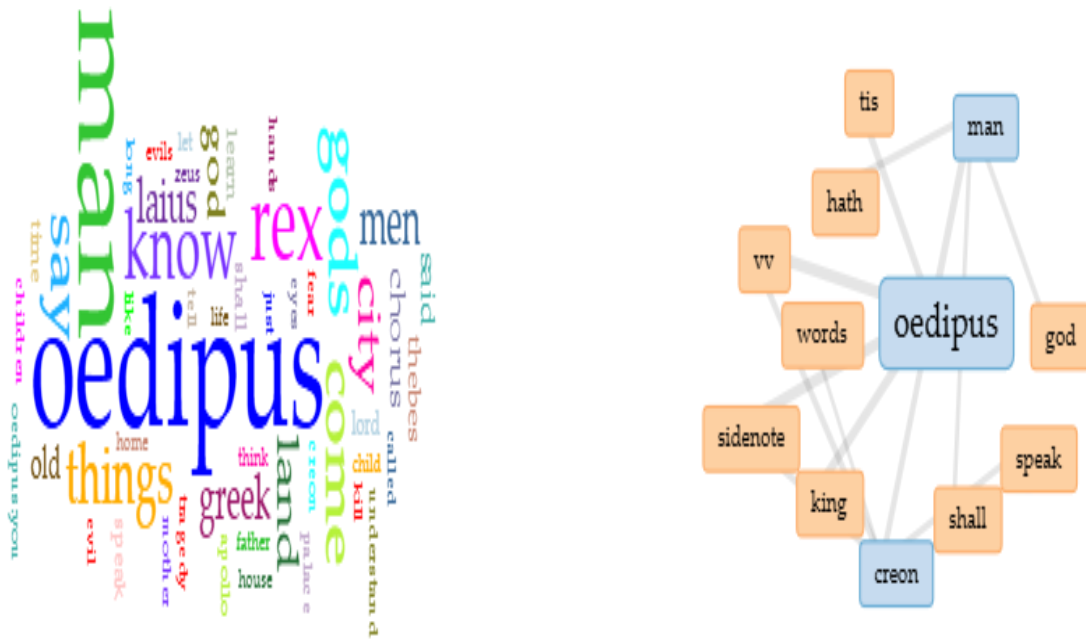


Figure 5. Word Frequency

### Cirrus (Word Cloud)

The Cirrus tool displays a word cloud based on the frequency of occurrence of words in a corpus or in a specific file. The larger the word in the cloud, the more frequent it is compared to the other words. When we upload, the word cloud visualization from Voyant placed “Oedipus” as the largest and most prominent node, followed by “king,” “truth,” “blind,” “curse,” “light,” “fate,” and “oracle.” The dominance of Oedipus reflects his linguistic and narrative centrality, nearly every thematic strand radiates from his character. The close clustering of truth, blindness, and fate encapsulates the tragic irony of the play: the more Oedipus seeks the truth, the deeper he descends into blindness. Similarly, the presence of light

juxtaposed with blind mirrors the text's symbolic opposition between knowledge and ignorance, sight and insight. The word cloud, therefore, is not just decorative but diagnostic, visually mapping the moral and semantic tensions that define Sophocles' tragedy.



**Figure 6. Voyant Analysis**

### Links Tool

Using the Links panel in Voyant, the connections between key words in *Oedipus Rex* become strikingly clear. The word truth is closely intertwined with light, see, blind, and curse, forming a semantic cluster that captures the play's exploration of knowledge and perception. This cluster reflects the tragic idea that enlightenment comes through suffering, as Oedipus, in a profound irony, truly "sees" only after he loses his physical sight. Another prominent cluster centers on fate, which is linked to oracle, god, and king. This network underscores the overwhelming power of divine will and destiny in human life, illustrating how the characters are bound by forces beyond their control. Together, these two clusters, one of human insight and suffering, the other of divine influence, highlight the central themes of knowledge, blindness, and destiny that define the tragedy of Oedipus

### 4.2 The Lexical & Frequency Analysis

The lexical analysis focuses on word frequencies and patterns, revealing the linguistic building blocks of *Oedipus Rex*. By examining term usage, we gain insight into the play's themes, characters, and stylistic choices. The Terms Tool and Trends Tool are instrumental in this lexical examination. When the text of *Oedipus Rex* was analyzed through Voyant's Terms Tool, the fifteen most common words (excluding stopwords) were found to be given and interpreted here.

Table 3. Lexical density

No.	Term	Frequency	Remarks / Interpretation
1	Oedipus	268	Central figure; lexical dominance shows narrative focus on the tragic hero.
2	Man	93	Represents humanity, moral struggle, and universal themes of fate and knowledge.
3	Creon	88	Key secondary character; indicates political and familial tension.
4	VV	84	Likely a repeated textual or annotation term; minimal thematic impact.
5	Sidenote	84	Structural/annotation artifact from digital text—non-semantic occurrence.
6	Jocasta	67	Major female character; frequency shows her emotional and thematic importance.
7	God	63	Reflects religious and moral dimensions—divine fate vs. human agency.
8	King	59	Symbol of authority and power; mirrors Oedipus's tragic position.
9	Hath	59	Archaic form of "has," reflecting classical linguistic style.
10	Stranger	54	Symbolizes otherness, recognition, and irony within the narrative.

Among these, Oedipus appeared the most, which is expected since he is the central figure of the play. The frequent use of words like fate, oracle, god, and curse shows the dominance of divine power and destiny, while words such as truth, blind, light, eyes, and knowledge relate to human understanding and perception. Together, these patterns reveal two strong semantic fields running throughout the play

1. The realm of fate and divine will,
2. The realm of human knowledge and reason

This balance confirms that Oedipus Rex uses its language to highlight the tension between human reason and divine control. Oedipus's repeated use of words about truth and sight shows his desire to understand the world through logic, while words about oracles and fate remind us that his life is governed by forces he cannot escape. In other words, the very vocabulary of the

play encodes its central conflict, the struggle between what humans can know and what the gods have already decided.

#### 4.2.1 Trends pattern in Oedipus Rex

The Trends tool provides insights into the lexical distribution and frequency of specific terms within Oedipus Rex. The terms analyzed include "vv", "stranger", "sidenote", "Oedipus", "man", and "king", tracked across ten document segments of the play. Analyzing the graph given below, of the relative frequencies across these segments reveals that the term "Oedipus" (represented by a blue line) exhibits notable peaks in segments 2 and 7. This suggests that mentions of "Oedipus" are more concentrated in these parts of the play. In contrast, other terms like "man", "king", "stranger", "sidenote", and "vv" have lower relative frequencies throughout the segments, indicating less prominence or more sporadic usage compared to "Oedipus". Further details in the Collocates section show contexts related to "Oedipus", mentioning "KING OF THEBES BY SOPHOCLES". This highlights the significance of Oedipus' role as a king in the play's narrative. Overall, the analysis indicates "Oedipus" is a central term with varying frequency across the play's segments.

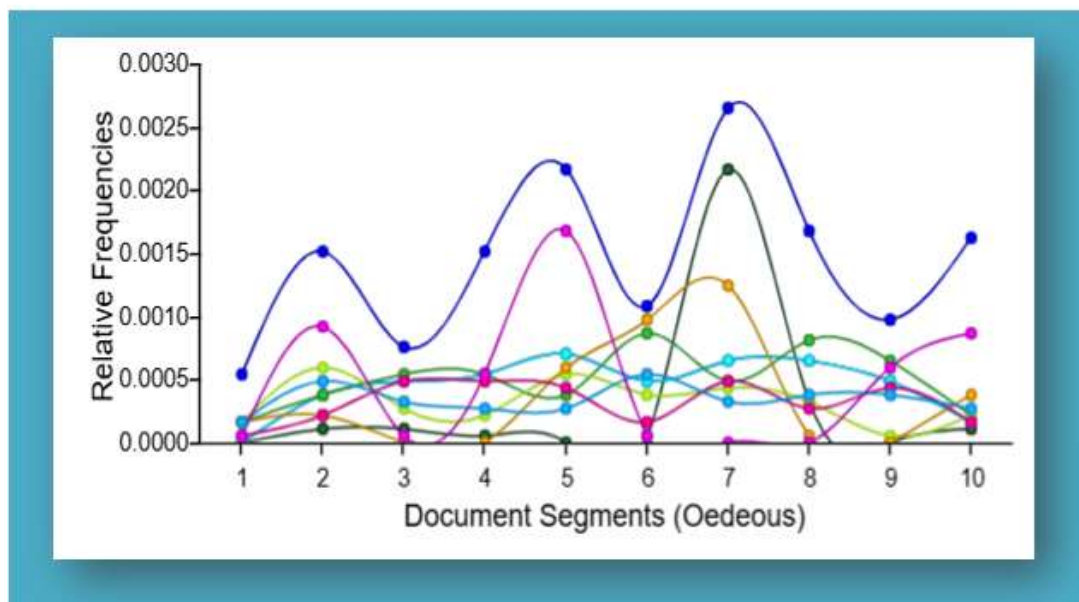


Figure 7. Trend tool frequency of terms visualization

#### 4.3 Contextual & Semantic Analysis

Contextual analysis delves into the relationships between words and their surroundings, shedding light on meaning and usage. This examination helps us understand how language contributes to the play's narrative and character dynamics. The KWIC Panel and Collocates Tool Panel facilitate this contextual exploration on the other hand; Semantic analysis explores the meaning and connections between terms, providing insights into the play's conceptual structure. The Mandala Tool visualizes these relationships, highlighting thematic and character associations. The Collocates tool presents a table with words that tend to co-occur and their co-occurrence frequency. The table is made up of three columns that display the base words, collocate and the number of co-occurrences, respectively.

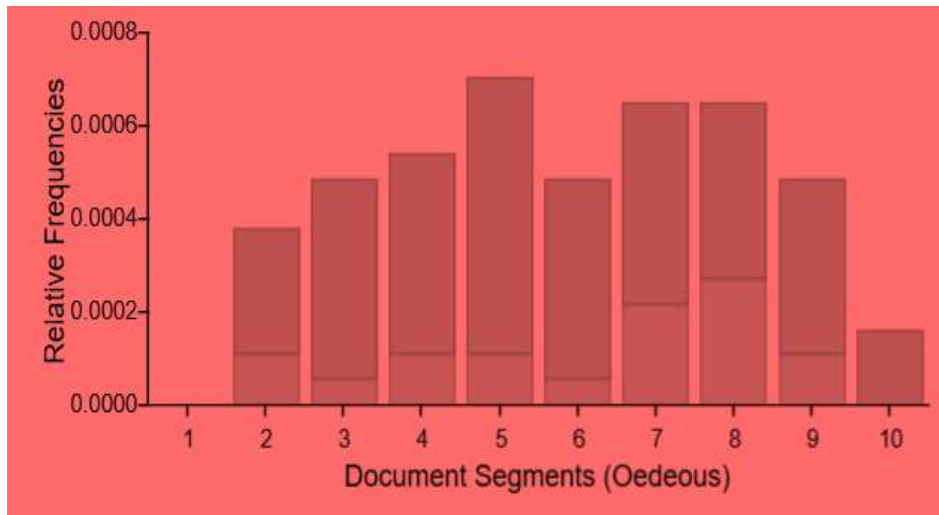


Figure 8. Collocation trends

Table 1 collocation pairs findings

Collocation Pair	Frequency of Co-occurrence	Semantic Relation
sidenote – vv	84 times	Strong textual or annotation-related connection
Oedipus – vv	19 times	Moderate association, possibly thematic reference
vv – Oedipus	19 times	Repeated co-occurrence reflecting reciprocal reference
Oedipus – sidenote	18 times	Lexical proximity indicating contextual overlap
Total Contexts Analyzed	2,732	Overall textual instances considered in the corpus

The visualization shown above was generated using the Collocate Tool in Voyant Tools, applied to the text of Oedipus Rex by Sophocles. The graph displays the relative frequency distribution of the word Oedipus (a text variant of Oedipus) across ten document segments. On the x-axis, the text is divided into ten equal parts, while the y-axis represents the relative frequencies of the term in each section. In addition to the frequency data, collocate counts further illustrate semantic relationships within the text. The Collocate tool recorded 2,732 total contexts, showing how key words tend to appear together. For instance, sidenote collocates with vv 84 times, Oedipus with vv 19 times, and Oedipus with sidenote 18 times. These recurring associations reveal patterns of co-occurrence, suggesting thematic or structural links in the play’s language. Overall, the visualization shows that Oedipus’s name occurs more frequently during the central sections of the play, corresponding to the climactic moments of self-discovery and tragic realization. The collocation data further highlights how lexical items

cluster around central narrative elements, helping identify semantic and thematic connections that shape the dramatic progression of Oedipus Rex. Together, these word connections show how the play's language builds a rich network of meaning. Through its patterns of repetition and association, Oedipus Rex expresses the deep philosophical struggle between knowledge and ignorance, human freedom and divine control, and light and darkness, both in vision and in understanding.

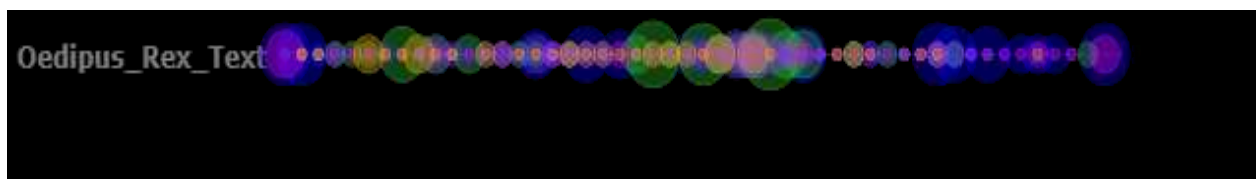
A mandala tool visualizes relationship or connection between terms in the text. The data we got by uploading Oedipus rex to Voyant tool, In analyzing the themes and characters of Oedipus Rex through the Mandala tool in Voyant Tools, a visually compelling circular layout emerges, showcasing key terms like 'Oedipus', 'jocasta', 'creon', 'king', 'god', and 'man'. Each term is highlighted in a distinct color within the Mandala view, suggesting connections and relationships between these elements in the text. This visualization offers insights into the lexical patterns and thematic threads woven through the narrative of Oedipus Rex, allowing for a deeper exploration of how characters and concepts interrelate in the play.



**Figure 9. Connection of different term of Oedipus rex via mandala tool**

#### 4.4 Thematic Analysis

Thematic analysis identifies patterns and structures in the play, revealing underlying themes and ideas. The Bubblelines Tool and Modeling Tool help uncover these thematic elements, providing a deeper understanding of Oedipus Rex. The Bubblelines tool indicates the frequency and distribution of words in a corpus or in specific files. Each file corresponds to a horizontal line.



**Figure 10. "Bubblelines" image from the data visualization of Oedipus Rex via Voyant tools**

The bubble lines in the Voyant tool show the distribution and frequency of the terms "oedipus", "man", "rex", "know", and "things" across a text (in this case, likely a text related to "Oedipus Rex"). Each bubble represents a segment of the text. The size of the bubbles can indicate the relative frequency or prominence of the terms in that segment. The colors correspond to the different terms "Oedipus = blue" "Man = pink" "Rex = green" "Know = orange" "Things = yellow". The horizontal line of bubbles shows how these terms appear throughout the text, with the number 364 at the end possibly indicating the total number of segments analyzed. The overall findings from Voyant Tools reveal that Oedipus Rex is a linguistically and thematically cohesive text, where every lexical and semantic pattern reinforces the play's tragic vision. The dominance of words, such as Oedipus, truth, fate, blind, and light, shows that Sophocles constructs meaning through deliberate repetition and symbolic contrast. The frequency analysis highlights Oedipus as the linguistic and narrative center, a reflection of his psychological and moral centrality in the story. The close association between truth, blind, and light in the collocation and trends tools reveals the deep irony that defines the play: the more Oedipus seeks enlightenment, the deeper he sinks into ignorance and darkness. Similarly, the recurring presence of fate, oracle, and god emphasizes the overpowering influence of divine will, suggesting that human freedom is limited within a predetermined cosmic order.

## 5. Findings and Discussions

Lexical, semantic, and contextual insights of the desired data offer a deeper and more complete understanding of Oedipus Rex. The results obtained from Voyant Tools support that not only the traditional literary interpretations, but also the modern digital computational and humanistic methods can work together to reveal new layers of meaning. The lexical data confirms that Oedipus dominates the text linguistically, reflecting his central role in both the plot and the moral conflict of the tragedy. The frequent appearance of words such as fate, truth, and blindness highlights the play's ongoing struggle with questions of destiny, knowledge, and human limitation. When examined through Voyant's collocation and frequency tools, these terms appear not as isolated ideas but as part of an interconnected web, a semantic network that holds the moral and philosophical framework of the drama together. The repeated linkage between light and blindness symbolizes Sophocles' powerful use of tragic irony: Oedipus only achieves true vision and understanding after physically losing his sight. Voyant's quantitative findings also trace the emotional and thematic progression of the play. The Trends tool shows that terms like truth and fate rise sharply near the end of the text, marking the point of Oedipus's recognition and self-realization. This pattern mirrors the tragic structure itself, where knowledge and suffering intensify simultaneously. Such digital patterns visually represent what close readers have long observed, the gradual movement from ignorance to enlightenment, from sight to blindness, and from pride to despair. From a broader interpretive standpoint, these findings confirm that the text's language mirrors its philosophical structure. Voyant's visualizations (word cloud, links, and Bubblelines) demonstrate how the tragedy is built on oppositions, knowledge versus ignorance, and light versus darkness, human versus divine. The contextual analysis through the KWIC tool further shows that words like see, know, and truth shift in meaning depending on the speaker and situation, illustrating how language itself becomes a site of irony and revelation. In essence, the computational data supports the

classical and existential interpretation of Oedipus Rex: that human understanding is always partial, and the search for truth can lead to destruction. The integration of lexical, semantic, and contextual insights thus transforms the text from a historical tragedy into a timeless study of human limitation and the paradox of knowledge. Beyond Oedipus himself, contextual analysis of Creon and Jocasta reveals additional layers of meaning. Their dialogue and actions bring out themes of loyalty, governance, denial, and moral responsibility, showing that the tragedy is not only personal but also social and political. Voyant's keyword contexts illustrate how these secondary characters support the play's larger exploration of truth and authority. In essence, digital textual analysis through Voyant does more than confirm what is already known. It enriches close reading by uncovering subtle lexical and semantic relationships that traditional methods might overlook. The fusion of computational data and human interpretation demonstrates that Oedipus Rex operates simultaneously on linguistic, psychological, and philosophical levels, making it a timeless text for both classicists and digital humanists alike.

## 6. Conclusion

This study demonstrates how Voyant Tools can effectively facilitate a digital-humanities-based exploration of classical literature. Through lexical frequency, semantic clustering, and contextual visualization, the analysis of Oedipus Rex illuminates the play's deep structure of meaning, revolving around fate, truth, and blindness. The findings of this paper reaffirm Oedipus as the axis of the tragedy, both linguistically and thematically. There is a visible quantitative emphasis on the name of "Oedipus" exhibit the psychological dominance and narrative centrality. Thus it is evident religiously that combining computational tools with literary interpretation bridge the gap between distant reading (data-driven patterns) and close reading (thematic insight). This methodological synthesis opens new pathways for understanding how classical texts like Oedipus Rex articulate universal human questions through language. In short, combining digital analysis with traditional reading provides new ways to explore meaning and emotion in literature. Even though Oedipus Rex was written thousands of years ago, it still speaks to human experiences, and tools like Voyant help us understand it more clearly.

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