

Hospice Words. Text Mining and Visualizations in Ken Kesey's *Cuckoo's Nest* and Hauben & Goldman's Movie Script

ANDREI STIPIUC

Universitatea „Alexandru Ioan Cuza” din Iași
andrei.stipiuc@gmail.com

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Miloš Forman's *One Flew Over the Cuckoo's Nest* film adaptation released in 1975 captures the essence of Ken Kesey's novel, additionally making some remarkable “European” differences to match the medium of the long picture format. The movie adaptation was made during a time of significant social and cultural change in the United States and finally put in front of the public something that nobody dared to touch in the industry. From a digital perspective, not many Romanian scientific articles have cobbled together and used data mining tools for textual analysis of distributions, recurrences, and term stylometry criteria to highlight information about the characters, attributes, the fundamental or secondary themes of a literary work. With this aim, and with the help of data synthesis and visual representations offered by Voyant Tools, we tried to quantitatively mark how, both in the book and in the film script, the quickly extracted data can comparatively highlight the main protagonists, themes, correlations and other attributes of the novel and the script. For the corpus analysis, we used the movie script available on *DailyScript*, and the 50th Anniversary Edition of the book, printed by Viking, Penguin Group, in 2012.

[...] *Forman's films exist as prayers to the wild at heart kept in cages and odes to flames that burn brightly, but are extinguished with brutality.* (Variety)

Conformity and Individualism in *One Flew Over the Cuckoo's Nest*

In 1962, Ken Kesey authored *One Flew Over the Cuckoo's Nest*, a literary masterpiece that delves deeply into the complexities of human behavior, societal norms, and the conflict between individualism and conformity, as well as oppression. This novel explores the tension between societal norms and individual desires for private freedom and expression. At the same time, the book offers a searing critique of the mental health institution (which was the American society of the post-Vietnam War), as a microcosm of larger societal structures and limns a vivid and often disturbing portrayal of life within the walls of mental institutions.

Ken Kesey's novel takes place in a mental institution, a miniature society in which characters with diverse backgrounds, different stories, and mental conditions have surprising interactions. Randle P. McMurphy, a rebellious figure, fakes insanity to evade prison labor and is admitted to the institution. His arrival disrupted the strength dynamics controlled by the main nurse Ratched.

Often known as ‘Big Nurse’, the chief of the medical staff symbolizes conformity and authoritarian leadership, using mental manipulation and physical punishment to maintain order among patients. With its particular quirks and flawed stories, each patient mirrors different aspects of societal conformity and individualism in the United States (Swaine, 2011). Chief Bromden, a Native American patient, and the story narrator, is a vital character who initially pretends to be deaf and dumb but ultimately regains his voice and self-identity through McMurphy’s influence. Other patients, such as Billy Bibbit and Cheswick, represent vulnerable spirits suppressed by different societal pressures.



Fig. 1 – Voyant Cirrus Cloud: top raw terms in the book. Hovering over the word reveals the raw frequency count of that word

The significant conflict in the novel revolves around the power struggle between McMurphy and Nurse Ratched. The ‘Big Nurse’ represents institutionalized conformity and control (a ‘Big Brother’ allusion, maybe) and uses her authority to suppress individualism and keep a facade of order. McMurphy, however, embodies rebellion and freedom, challenging the institution’s rules and encouraging fellow patients to express themselves.

The psychiatric institutions in the novel reflect broader public perceptions of mental illness in the mid-20th century. Historically, mental health institutions have been plagued by neglect, abuse, and lack of understanding of mental health (Christensen, 2010: 72-74). These institutions became symbols of isolation where individuals were stigmatized and subjected to inhumane conditions. Kesey’s work emerged at a time of widespread awareness of mental health reform, helping shape an important new approach to these institutions. Mental institutions have come to be a micro-society wherein the battle among these forces is amplified. McMurphy’s rebellious spirit and charismatic nature awaken patients’ suppressed goals of self-expression and autonomy. Bromden’s adventure, from feeling small and invisible to regaining his identity, illustrates the transformative power of embracing individualism.

The institution’s dehumanizing practices are evident in its use of electroconvulsive therapy (ECT) and lobotomy as methods of control. These procedures are administered without genuine concern for patients’ well-being, emphasizing the institution’s desire to comply with their mental health. The lobotomy performed on McMurphy symbolizes the ultimate form of control – the destruction of his autonomy and individuality. Patients’ experiences of dehumanization, such as being treated as objects or numbers, resonate with broader concerns regarding the erosion of human dignity in institutional settings. Kesey’s portrayal challenges society’s tendency to devalue individuals who do not conform to the *de facto* norms.

Ken Kesey faced criticism from various sources during his career, especially in response to his book *One Flew Over the Cuckoo’s Nest*. The story dealt with topics related to mental health, social norms, and rebellion, which elicited mixed reactions from critics.

Leslie Fiedler, a prominent critic of Kesey's work, was the literary scholar who offered a consistent critique of the book for what she perceived as a depiction of oppressive female authority. (Fiedler, 2008: 21).

Kesey also faced objections about his representations of female characters in the novel from various critics (Jansson, 2015, 10; Machalová, 2020: 60; Scerri, 2020: 65-66). Nurse Ratched is presented unfavorably, and her interactions with male patients are characterized by power struggles and manipulation. Some argue that this portrayal reinforces negative stereotypes associated with women in positions of authority. Furthermore, female characters in the novel generally possess less depth than their male counterparts, leading to criticism that this perpetuates gender stereotypes (Calle, 2014: 45-46). Criticism of Kesey's treatment of gender in the novel has sparked conversations about the broader implications of the book's themes and characters, as well as the ways in which literature both reflects and influences cultural perspectives on gender and power (VanWert, 1976: 51-52).

An extremely difficult adaptation

The cinematic rendition of *One Flew Over the Cuckoo's Nest*, helmed by Miloš Forman, materialized amidst a period characterized by substantial social and cultural transformations within the United States. The film was released in 1975, and its production process likely reflected the prevailing climate of the era. The 1960's and the 1970's were marked by various social and cultural movements, including the Anti-Vietnam War Movement, the Civil Rights Movement, and Women's Liberation Movement. These social and political movements have challenged traditional norms and structures, including those related to power dynamics and authority. The countercultural movement of the 1960's still influenced society in the 1970's. This movement promoted anti-establishment sentiments, individual freedom, and challenging traditional authority, which resonated with the themes of rebellion in the film.

The 1970's was a period of filmmaking often associated with auteur-directors pushing the boundaries of cinematic storytelling. Miloš Forman was part of this movement, and *One Flew Over the Cuckoo's Nest* reflects the era's interest in exploring complex characters and social issues on screen. The film's themes of challenging authority and resisting oppressive systems were in line with the changing perceptions of authority in American society at that time. For example, the Watergate scandal eroded trust in institutions and power for decades to come.

Initially impossible to handle, *One Flew...* remained a book that in the movie industry "nobody dared to touch" (Mikulec, 2016). The film's release in 1975 positioned it as a part of the New Hollywood movement, which brought about a new wave of artistic and innovative filmmaking. The film's success at the Academy Awards, winning all five major categories (Best Picture, Director, Actor, Actress, Adapted Screenplay), showcases its cultural impact.



Fig. 2 – Magazine Section of the time
(Image source: Film/Art Gallery)

In this climate of social change, *One Flew Over the Cuckoo's Nest* was well received by audiences and critics. The film's exploration of themes related to authority, individuality, and resistance resonated with broader cultural conversations of the time.

Ken Kesey had mixed feelings about the movie adaptation directed by Miloš Forman though. Kesey himself was not directly involved in the creation of the film, and he had reservations about how his novel was translated to the screen. He was involved in a legal dispute with the film's producers over the rights to the story (Ledbetter, 1976). He believed that the movie deviated significantly from his novel and that it did not capture the essence of his work as he had envisioned it. Kesey chose not to see the film initially and encouraged others to do the same. He expressed dissatisfaction with the cinematic depiction of the characters and the narrative in the film adaptation of his novel, particularly with regards to the character Chief Bromden. Eventually Kesey viewed the film and, while still holding reservations, approved the strength of the performances, particularly Jack Nicholson's portrayal of McMurphy.

The movie garnered widespread critical acclaim and achieved significant cultural impact. It received numerous Oscars, including the Best Picture award, and contributed to the enduring popularity of the novel.

Mining The Nest: Hospice Words

In this article, we tried to show the continuous potential of text mining tools and practices with Voyant, to briefly emphasize the different linguistic correlations within the book regarding the most frequent terms, in general, and the lexical family of mental illness terms in a comparative way between the book and the script in particular.

Voyant Tools was developed by Stéfan Sinclair and Geoffrey Rockwell, two scholars in the discipline of digital humanities. They created the software to guide textual content analysis and visualization for researchers and educators. The preliminary development of Voyant Tools began in the mid-2000s, and it has undergone a couple of updates and upgrades (Rockwell & Sinclair, 2022).

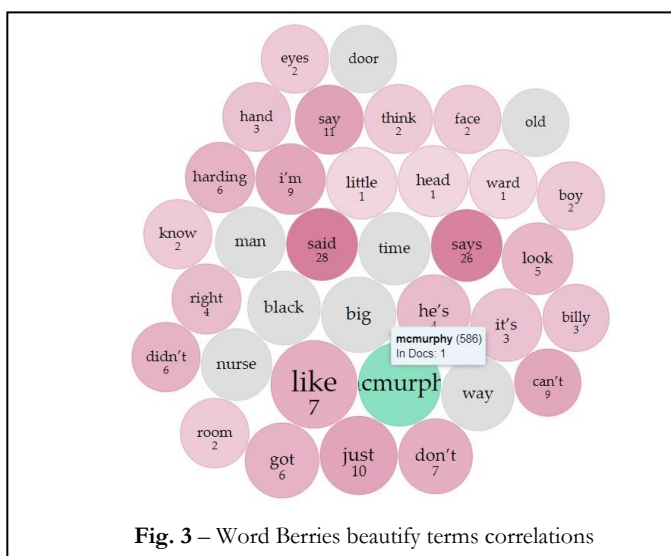


Fig. 3 – Word Berries beautify terms correlations

One of the standout features of Voyant Tools is its capacity to generate textual data and interactive statistical visualizations. Researchers can create word clouds, scatterplots, and different graphical representations of the textual content, which simplifies the identification of routine motifs and literary tendencies, additionally beautifying the presentation of the study's findings.

AIC

Following the words and writing pattern in the book, the Cirrus tool (word cloud recurrences) shows that the action revolves around the main character Randle McMurphy (mentioned 586 times), that the characters are mostly men ('he', 288 times), a term that can be joined to that of 'man' (220 times). A virtuoso of onomatopoeia and satire, 'like' (777!) is the verb (and the adverb) that illustrates not only the novel's ironic dynamism, but also the insinuating presence of a false, calm atmosphere. 'Black' (295) is a term with frequent recurrence. Many gender analyses of the novel nuance the simplistic contexts in which ethnicities and genders are or are not discriminated against by black employees of the hospital or female staff. 'Harding' (208) is the secondary character that the author, through Chief Bromden's voice, mentions most of the time.

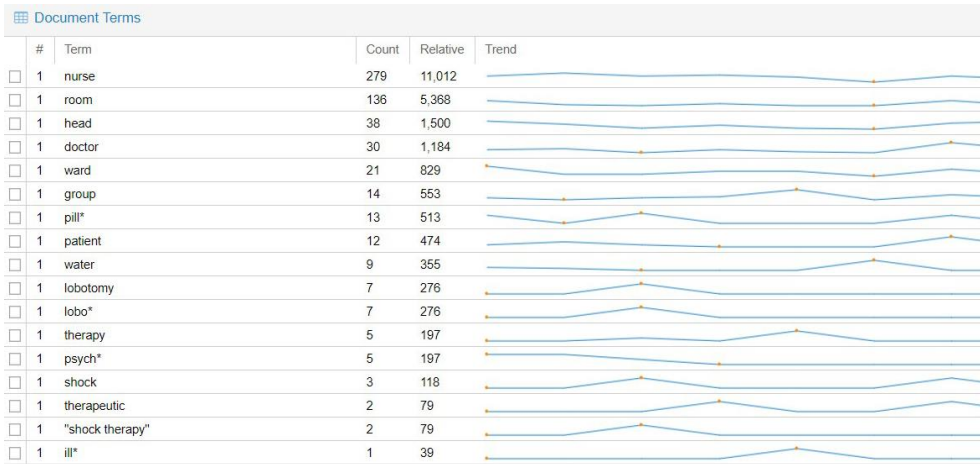


Fig. 4 – Looked terms, their raw count, relative score, and weight

In juxtaposition with McMurphy's revolt, the popular term 'nurse' (238) that, in the book, refers both to Chief Ratched, and less frequently to Flinn, is the most used. In the same register of mental health, the term with the highest frequency is 'head' (219). Patients vegetate in 'room'-s (193) or 'wards' (182), 'look' (235) a lot, and 'say' (236) as much; they possess 'little' (229) but have plenty of 'time' (249). The linearity of recurrences visually provided by Voyant can help the researcher reach the desired context in one of the ten segments of the book.¹

#	TERM	COUNT	Z-SCORE ²
0	nurse	238	1.8996204
0	head	219	1.7387238
0	room	193	1.5185494
0	ward	182	1.4253987

¹ The 10-part segmentation was set in the Voyant Tools options.

² The Z-Score represents the standard deviation taken from the field of Statistics. In the corpus of a text, the Z-score for a term is the calculated value for the recurrence of that term compared to other recurrences of other terms, according to their sum as a whole or by the segment of a textbook.

0	doctor	159	1.2306291
0	water	65	0.43461418
0	group	39	0.21443982
0	pill* ³	38	0.20597158
0	patient	29	0.12975739
0	shock	28	0.12128914
0	psych*	23	0.078947924
0	therapeutic	20	0.053543188
0	therapy	9	-0.039607495
0	psychopath	9	-0.039607495
0	ill*	8	-0.04807574
0	lobotomy	5	-0.07348047
0	'shock therapy'	3	-0.09041696

Fig. 5 – The total count and the Z-score of the medical (re)searched term

Other terms complete the medical lexical family when Kesey is not juggling jargon and slang terms or when he is not using euphemisms. Among psychiatric medical practices ('psych*iatry' 5), the lobotomy ('lobo*tomy' 7) with which McMurphy's rebellion and the individual himself were extinguished is rarely mentioned in its proper sense.

Other controversial methods of one of the most serious social themes of the '60s the '70s also involved electroshock ('shock'^therapy' 3). In the novel, hydrotherapy ('water'^therapy' 65) is often used as a form of punishment or as a means of controlling the patients, particularly those who act out or defy the hospital's strict rules and Nurse Ratched's authority. It is portrayed as a dehumanizing and often abusive practice as patients are forced to undergo treatment against their will. The other non-brutal interventions, but imposed most of the time on the 'patient'-s (12) through rigidity or the imperative orders of the absent 'doctor'-s (159) are the mandatory 'pill'-s (16), the military like enforced 'sleep*' (28), or the 'group' (39) 'therapies' (9).

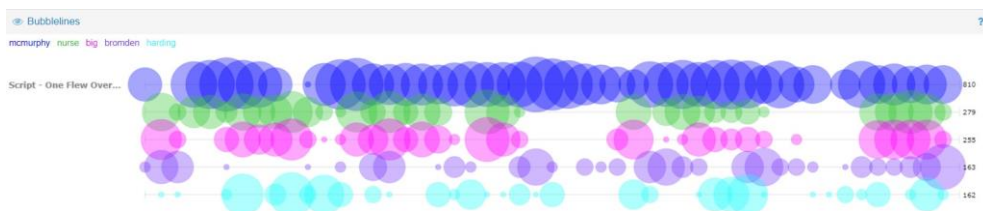


Fig. 6 – Granularity of main terms throughout the novel

In the camp of the oppressive system, it is surprising that Nurse 'Ratched' is formally nominated relatively few times (46), while Nurse Flinn is barely named (3). The visual section dedicated to trends marks very clearly the proportions in which a term appears throughout the book.

³ The wildcard can stand for a prefix, lexical suffix or even another term. The exponential sign (^) used only in conjunction with the wildcard (*) can extract or refer to a separate term.

AIC

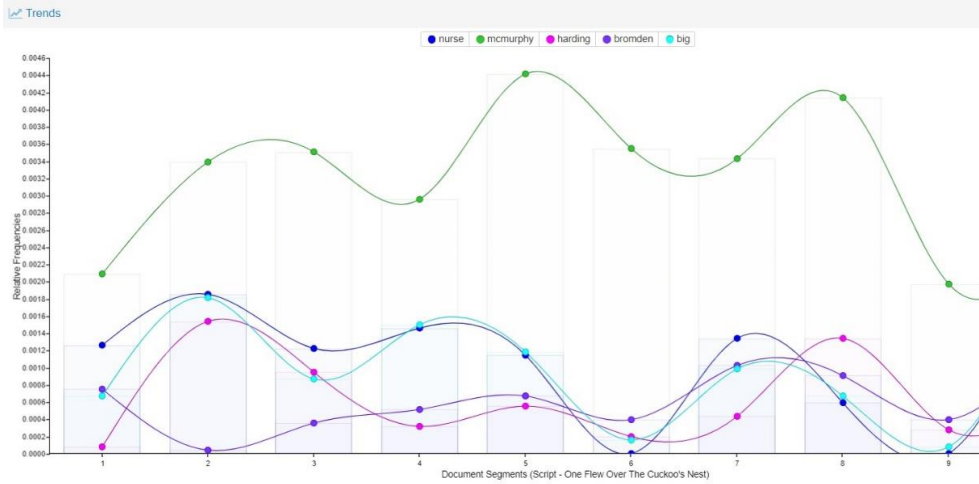


Fig. 7 – ‘Trends’ showing the frequency of certain terms throughout the book

In the script written by Lawrence Hauben and Bo Goldman, Cirrus brings out the same great recurrences, keeping the proportionality imposed by the rigors of a relatively small text compared to the original work, while other new terms name the protagonists or the indications given to the characters, since the cinematic means substitute or suggests actions, images and gestures without naming them.

#	TERM	COUNT	RELATIVE ⁴
0	nurse	279	11011.564
0	room	136	5367.644
0	head	38	1499.783
0	doctor	30	1184.0392
0	ward	21	828.8274
0	group	14	552.5516
0	pill*	13	513.0837
0	patient	12	473.61566
0	water	9	355.21176
0	lobotomy	7	276.2758
0	lobo*	7	276.2758
0	therapy	5	197.33986
0	psych*	5	197.33986
0	shock	3	118.403915
0	therapeutic	2	78.93594
0	‘shock therapy’	2	78.93594
0	ill*	1	39.46797

Fig. 8 – The total term count and the relative score of the looked terms

⁴ The relative score equals the raw frequency (count) divided by the total number of terms in the document, which is then multiplied by one million.

We aimed to provide the main picture, then examine the weight, granularity and recurrences of the same terms in the book, in order to trace schematically how the screenwriters worked on the screenplay version. The direct hints about Randle McMurphy (mentioned 586 times) are followed, this time by the narrator from the book, ‘Chief Bromden’ (163), portrayed in the film by Will Sampson. ‘Harding’ (162) no longer occupies the onomastic podium: ‘Billy’ (152) and ‘Martini’ (125) are often mentioned, and ‘Turkle’ (99) and ‘Washington’ (121) are among the antagonists with the most frequent occurrences. The “like” (32) atmosphere preserves its apparent sumptuousness under which the ‘big’ (225) individual and collective conflicts over ‘The Big Nurse’ (‘nurse’ - 279) smolder. ‘Room’-s (136) are often mentioned, as are ‘day’-s (121). Regarding linguistic correlations, the patient ‘fights’, ‘moves’, ‘leaves’, ‘goes’ to the ‘doctor’-s, ‘creates’ ‘disturbance’-s and ultimately ‘fade*’.

Correlations					
Term 1	←	→	Term 2	Correlation...	Significanc...
fight			patient	0.96428573	0.0000068...
inmates			patient	0.9211324	0.0001537...
moves			patient	0.9027939	0.0003468...
cigarette			patient	0.8943244	0.0004794...
ad			patient	0.8875895	0.0006086...
est			patient	0.8728716	0.0009774...
america			patient	0.8728716	0.0009774...
bless			patient	0.8728716	0.0009774...
ca			patient	0.8728716	0.0009774...
carton			patient	0.8728716	0.0009774...
dorms			patient	0.8728716	0.0009774...
na			patient	0.8728716	0.0009774...
gurney			patient	0.8507798	0.0018043...
itsu			patient	0.8505691	0.001814089
doctor			patient	0.82735956	0.0031377...
leaving			patient	0.8261596	0.003220951
da			patient	0.80087787	0.005366929
disturbance			patient	0.80087787	0.005366929
fade			patient	0.80087787	0.005366929
bit			patient	0.79254246	0.0062556...
caught			patient	0.78571427	0.0070579...
left			patient	0.78571427	0.0070579...
body			patient	0.7671932	0.009598036

837 minimum coverage (%100)

Fig. 9 – Terms main ‘Correlations’ showcasing ‘patient’ proximity frequency with other lexical elements

Conclusions

Even for basic quantitative analysis of vocabulary, phrase usage, and stylistic analysis, Voyant Tools remains a crucial software in the toolkit of a digital philologist. Through its ability to synthesize summaries, fundamental recurrences, and quantitative searches, Voyant provides a means to arrive at an impressive qualitative analysis. After the paintings were impressively created by Kesey in *One Flew Over the Cuckoo's Nest*, with which the author illustrates, in his unique style of humor, sarcasm, and irony, the atmosphere of a mental asylum – an atmosphere that can be quite easily correlated with the dimension of the dysfunctional lot of institutions from any country, not necessarily the post-Vietnam United States –, with Voyant Tools, comparative analysis can be done with other works that are based on the same topic. Power in numbers is still a power, mostly in the linguistic space.

A comprehensive qualitative study could comparatively examine how the literature of a particular era explored the subject matter of medical institutions, physicians, and the perception, comprehension, and portrayal of mental disorders in societies, media, or other scholarly publications of that time.

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