

Rage, Regret, and Repentance:

A Psycho-linguistic Analysis of Inmates' Last Statements

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I. Introduction

On October 1st, 2024, Garcia Glen White was put to death via lethal injection, making him the 591st inmate to be executed in Texas since the state first adopted the lethal injection in 1982 (Neumann, 2024). Though capital punishment remains legal in 27 states, more inmates have been executed in Texas than in the next four states combined. Since 1982, the Texas State Department of Criminal Justice (TDCJ) has maintained a public record of the last words of every inmate before their execution (TDCJ, 2024). Inmates are told the date of their execution well in advance. Traditionally, they are given the option of either verbally speaking their last words while awaiting execution, or preparing a written statement to be released to a predetermined recipient (Myers, 2024). In either case, inmates are informed that their statements will be inventoried on the public record (Bruenig, 2023), thus final statements are often the product of deliberate premeditation.

Giving death row inmates the opportunity to speak their last words has been documented as early as 1388 in England, and was adopted in the USA in the early 17th century (Upton et al., 2016). Ever since, last words in the face of execution have been a subject of public fascination for almost as long as capital punishment has existed. From a psycho-linguistic perspective, death row statements offer a rare window into the human psyche at a moment of unparalleled duress. However, psycho-linguistic literature has often viewed death row inmates as a homogenous group—attempting to tie expressions in their last words to “universal” features of the human condition rather than understanding them as a product of inmates’ particular contextual and demographic circumstances. What motivates an inmate to express resentment or frustration may be vastly different from that which moves an

inmate to appeal to their loved ones for forgiveness. Similarly, inmates from different backgrounds may vary greatly in how they articulate the same sense of regret or anger.

In this paper, we adopt an inductive approach to the analysis of the last words of inmates executed in the State of Texas since 1982, with the aim of characterizing the common themes and shared expressions that organically arise from text clustering. Further, we analyze how the most common words and themes that arise from clustering vary across key demographic factors like ethnicity and educational attainment.

A. Terror Management and Coping

Psycho-linguistic analyses of final statements have often been framed in the context of the need to establish a sense of control in response to the extreme circumstances they face. Greenberg, Pyszczynski, and Solomon (1986) argued that last words primarily serve as a Terror Management Mechanism—granting the convicted a final chance to assert agency over their death and recover their sense of self-esteem. They thus argue that an individual’s final statements act primarily as a means of coping and inward rationalization. Greenberg’s Terror Management Theory (TMT) was founded on an analysis of the clinical writings of psychotherapists like Karen Horney who treated near-death patients. Greenberg documented a self-serving bias in causal attribution whereby individuals, despite their dire circumstances, counterintuitively tended to focus on positive self-expression and affirmations of their beliefs.

Hirschmüller and Egloff (2016) expand on this approach in their word-count-based analysis of the content of final statements. Hirschmuller and Egloff also analyze statements from the TDCJ dataset, but take a deductive approach using the Linguistic Inquiry and Word Count (LIWC) dictionary to score each statement based on its positive versus negative emotional content. They found that the majority of death row statements analyzed counterintuitively had a high degree of emotional positivity. To explain their results,

Hirschmuller and Egloff invoke Greenberg's Terror Management Theory, arguing that positive sentiment in final statements reflect a psychological defense mechanism inmates use to regain a sense of perceived control in their final moments.

Though Terror Management Theory provides a framework for understanding final statements of positive emotional affect, it does not comprehensively describe the range of reactions inmates have in response to execution. In particular, the notion that last words are a form of positive coping seems tangential to those inmates who respond in rage and defiance to their execution.

B. Dramaturgical Approaches: The Theatre of Death Row

Other approaches to the study of last words have focused on the theatrical and performative aspects embedded into the ritual of execution. Though modern executions are far from the highly publicized affairs of the past, they maintain many of their ritualistic elements. There is a sense of ritualistic regularity in every step that leads up to the execution—from the moment an inmate is told the date of their execution to the recording of last statements.

Rizza (2014) applied Huizinga's concept of the language of play to the quantitative analysis of death row statements and found that last statements contain many elements of "ludic" or playful language as classified by Cook's taxonomy. Inmates would use playful language to make light of the gravity of their situation. Rizza also noted other playful semantic features beyond language use. It was common for inmates to break into song, recite prayers, or even structure their statements in poetic form.

Rizza framed the use of playful language as both a means of coping and a means of subversion. Humor is a tool to rebel against the perceived injustice of an execution. Last rites

allow inmates a final chance to regain control of their narrative and position themselves as the protagonist of their execution.

C. Last Words as Meaning-Making

Linguistic analyses of last words also reveal how prisoners astute about their impending death and make sense of their situation. Hirschmüller and Egloff (2018) argued that although inmates' last words are generally positive, it does not imply that these subjects regard their death as wholly positive, but rather can be associated on how the inmates' affective states and meaning-making affected due to the precognition of their own death. Additionally, the knowledge of providing the inmates' the exact date and time of their own peril makes their experience unique and different compared to people suffering with terminal illnesses. Such awareness impacts how inmates generally make sense of their situation and provide meaning and evaluation with their lives.

The meaning-making paradigm positions an individual in two levels of meaning that serves as its standards in assessing situations in life (Park, 2013). Global meaning pertains to the individual's worldview virtues while the situational meaning is the understanding extruded by the self in a given instance. However, this paradigm is oftentimes understood in ideas of discrepancies wherein an individual who suffers from adversity (traumatic event, stress) tries to either assimilate its interpretation of the instance with its worldview or accommodate its general perceptions to fit the individual narrative. In the case of adversity, meaning is (re)constructed and varies depending on how the individual interprets which ultimately can also alter how the individual makes interpretation and observation.

In the case of the inmates, their incapacity to exercise their individual freedoms on top of bearing the knowledge of their own impending death poses a possibility of an altered meaning-making process. Thematic analysis of last words said by inmates revealed that the

majority of them are about love, religion, spirituality, repentance, and forgiveness to the wrongdoing done, particularly to towards the victims and to their family, which overall revealed a more outward, positive expression to parties involved. In this regard, their knowledge of their impending peril made them contextualize their situation and profoundly realize their wrongdoings, leading them to appreciate their final moments of their lives by asking for closure to God, their family, or the family of their victims.

II. Review of Related Literature

A. Qualitative Approaches

Kelly & Folley (2013, 2018) conducted several studies focusing on the same dataset as the present study. Their 2007, 2013, and 2018 studies analyzed the emotions of last words of death row inmates collected from April 2002 to November 2006, December 2006 to July 2011, and from August 2011 to May 2017, respectively. For each prisoner, baseline characteristics relating to the topics discussed in the last words were recorded. The Thematic Guide for Suicide Prediction, which was developed for suicide notes, was used to analyze psychological factors, including five intra-psychic factors (unbearable psychological pain, cognitive constriction, indirect expressions, inability to adjust, and ego) and three interpersonal factors (interpersonal relations, rejection-aggression, and identification-egression). In all three studies, love and spirituality were the most common themes. No topics or psychological factors became significantly more common throughout the years, but a few topics (requests for forgiveness and use of literature) and psychological factors (inability to adjust and identification-egression) became less common. Pairs of topics and psychological factors were also associated with each other.

Johnson & Lantsman (2021) deductively explored the narratives of death row inmates through online blogs. A total of 80 blog posts were randomly chosen from the first five results in searching "death row blogs", and each post was coded for the presence of specific words and analyzed in terms of legal and correctional procedures. The research studied how stays of execution (temporary suspensions of the execution) and solitary confinement cause psychological stress and trauma, despair, depression, and powerlessness, not only for the death row inmate, but also for their families and the families of their victims.

Upton et al. (2016) analyzed 46 last statements from death row inmates executed in Missouri from 1995 to 2011. The researchers inductively applied thematic analysis, a framework developed by Braun and Clark in 2006, to categorize the last statements. The statements were classified into three main domains: life, death, and execution, which were further divided into categories, and further again into themes. Similar to other research, the top themes were love, spirituality, and advice / forgiveness. A major point made was that differences in results could have been caused by the fact that Missouri inmates are mainstreamed into the general prison population, unlike the inmates discussed in other studies.

B. Quantitative Approaches

Awwalu et al. (2020) analyzed the same dataset as the present study and aimed to classify the emotions expressed by death row inmates that are 35 years old and below. They used the Naïve-Bayes machine learning algorithm and unigram and bigram bag-of-words, through the TextBlob library in Python. The possible classes of emotions were joy, anger, sadness, fear, surprise, and love, and these were classified in the statement level and the sentence level. Their results showed that joy, anger, and sadness had the highest scores, and there was no significant difference of emotions across different races.

Mehra et al. (2024) meanwhile extracted the valency of emotions expressed by the inmates in their final statements. In their paper, they found out that although the inmates had a positive arousal during their speech, they still felt a mixed of emotions such as sadness, serenity, and joy, prompting them to be aware of their surroundings particularly to the people watching the said execution. Additionally, a notion-to-notion transition was also analyzed to reveal the flow of thought and emotions they want to convey. In their analysis, statements that are thematically related to guilt are oftentimes followed by statements of guilt while faithful narratives are accompanied by gratitude. This suggests that the inmates are attempting to redefine their understanding of life more positive,ly especially in their final moments of life and also try to recognize certain notions that govern human life and how it becomes essential on their journey (religion, faith, family).

III. Methodology

A. Dataset

The TDCJ dataset contains a record of the final statements of all death row inmates executed in the state since 1982, along with various demographic information about each inmate (including their age, ethnicity, and highest educational attainment) and their convicted crime (e.g. whether they committed a previous crime and their number of co-defendants). It is publicly available through the TDCJ website, though records from before 1995 are kept only as scans of the paper documents. A pre-extracted and cleaned version of the TDCJ dataset for records from 1982 to 2017 is publically available through Kaggle* (Nguyen, 2017). This study combines both available versions to form a unified dataset from 1982 to October 2024, comprising 591 inmates in total. The following table describes the variables of the dataset to be used in the study:

Table 1. Fields of TCDJ Dataset

Column Name	Description	Remarks
Execution	Ordinal position of the inmate to be executed	Min = 1; Max = 591
LastName	Last name of the inmate to be executed	-
FirstName	First name of the inmate to be executed	-
TDCJNumber	Texas Department of Criminal Justice inmate number	-
Age	Inmate's age at execution	Min = 24; Max = 67
Date	Date of execution	Min = 1982/12/07; Max = 2024/10/01
Race	Inmate's racial identity	Black, Hispanic, White, Other
County	County where the inmate was residing	
AgeWhenReceived	Inmate's age when they received	Min = 17; Max = 57; with missing data
Education	Highest grade level completed by the inmate	Min = 0; Max = 16; with missing data
NativeCounty	Whether the inmate's native county is in Texas or not	Binary (0 within Texas, 1 outside Texas)
PreviousCrime	Whether the inmate has committed a crime before	Binary (0 no, 1 yes); with missing data
Codefendant	Number of co-defendants	With missing data
Last Statement	Last statement of the inmate before execution	Some inmates declined to make a statement

*There are some discrepancies between the Kaggle dataset and the version available on the TDCJ site. In those cases, the TDCJ dataset will be referred to.

B. Analytic Procedure

This study takes a sequential mixed-methods approach to explore the possible hidden themes and linguistic features of final statements. The analysis will be conducted in three phases, each of which will broadly take an inductive approach to the text subjects, namely (1) topic modeling, (2) quantitative and qualitative analysis, and (3) demographic analysis. Further descriptions of each step are presented below.

1. Topic Modeling

The research will employ topic modeling via clustering algorithm to identify and uncover salient themes present in inmates' final messages. This technique will make use of an unsupervised learning algorithm on a cleaned corpus of text to detect communities of words that make up a specific theme. Afterwards, an analysis of linguistic features will be done to each community and the partitions shall be contrasted with the demographic variables.

2. Quantitative and Qualitative Word Frequency Analysis

After the themes are extracted, several quantitative and qualitative analysis will then be utilized to further expound the meaning behind the aggregation of the texts. Analysis will first be done on the frequency of words used across the text as a whole, then on word counts as grouped by demographic of interest. Numerical features top words and their count will be retrieved from the corpus and have it contrasted against each cluster. Finally, the top words for each cluster will be used to generate a narrative storyline that will encapsulate the overall idea present for each clustered theme.

3. Demographic Analysis

To further substantiate the analysis for such an extensive dataset, clustering will also be done within the inmates' race and education level (years of schooling) to search for patterns between their identities and final statements. Such clusters will then be supplemented with interpretation and analysis by considering the top words present with each cluster, as well as providing sample statements. Lastly, these top words will also be contrasted with the most frequently used words extracted from the clustering of the entire corpus.

The inmates' internalization of their own racial identity is hypothesized to play a significant role on how they construct their final statements. As such, experiences of coercion and discrimination against a minority group or renouncing of racial privileges are expected to be more or less implied in the statements. However, it can be argued that for the educational demographics, such connections would be lackluster as fluency in the English language and exploring how words can be used to form thoughts and ideas can also be attained by other means other than attaining high levels of formal education, such as interacting with peers and being immersed in forms of media.

IV. Results and Discussion

A. Word Counting

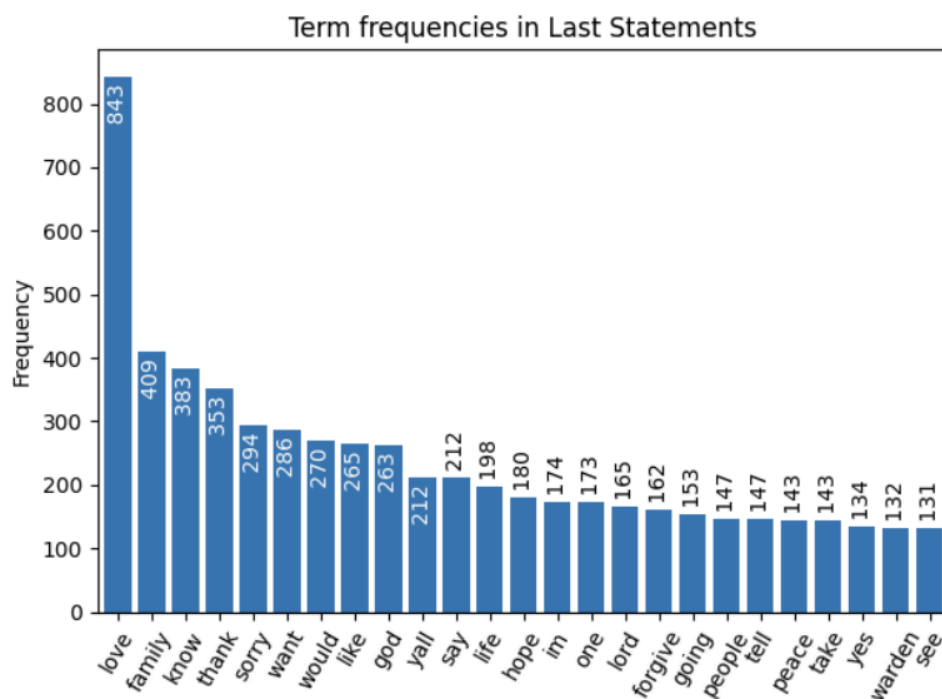


Fig 1. Frequencies of top 25 words across entire corpus

expression of an inmate's inner thoughts, but are acutely curated performances with an intended audience in mind.

The dominance of positive emotional language alone however, does not imply that the majority of last statements conveyed a mostly positive outlook. To further contextualize how the above terms are used in conjunction, topic modeling provides a more comprehensive idea of the themes that organically arise.

B. Topic Modeling

1. Entire Corpus

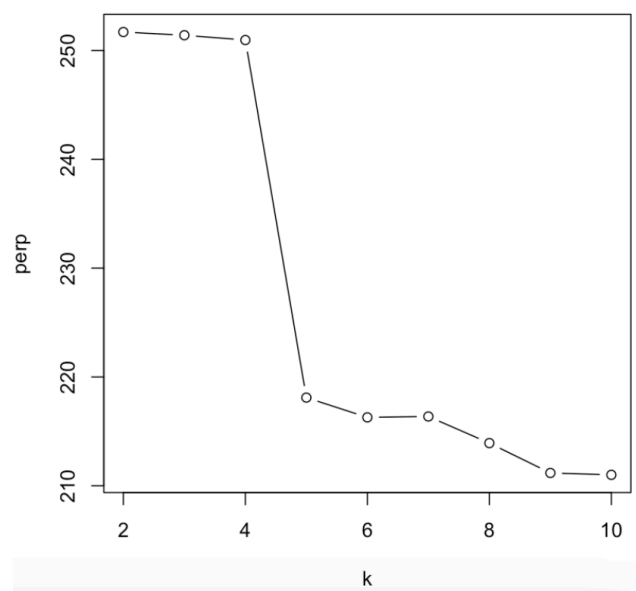


Fig 3. Perplexity plot per k -topic clusters over entire corpus

Topic modelling was first performed on the corpus as a whole to identify major umbrella themes that could later be contrasted with the themes emerging per demographic cluster. The perplexity plot in Figure 3 suggested $k = 5$ topic clusters, with a significant drop off in perplexity between 4 and 5 topics. The top words per cluster, along with the interpreted themes, are shown in Table 1. Sample texts per cluster are included in the Appendix.

Table 1. Topic clusters and top 10 words by cluster probability

Topic Cluster	Terms of Highest Cluster Likelihood
<i>Rage</i>	<i>say, like, now, one, people, death, life, will, time, don('t), said, row, allah, get, right, justice, never, world, think, statement</i>
<i>Resignation</i>	<i>love, want, know, thank, tell, going, ready, warden, yes, everybody, see, mom, take, didn('t), care, just, everyone, everything, life</i>
<i>Regret</i>	<i>family, sorry, hope, like, peace, can, thank, pain, find, just, will, caused, friends, heart, apologize, know, say, forgive</i>
<i>Religion</i>	<i>god, lord, jesus, forgive, ask, love, will, father, thank, life, christ, please, forgiveness, bless, heaven, home</i>
<i>Resistance</i>	<i>love, will, keep, strong, know, stay, always, don('t), let, innocent, people, man, get, kill, continue, brothers, make, murder</i>

Based on the most likely terms and an examination of the top sample texts per cluster, we classify the five topics as: *rage*, *resignation*, *regret*, *religiosity*, and *resistance*. Three of the topics found, *resignation*, *regret*, and *religiosity*, closely mirror those found by qualitative critical discourse-analysis oriented studies (Upton et al., 2017; Schuck & Ward, 2008) that examined final statements in other states. On the other hand, the clusters of *Rage* and *Regret*, though not directly identified, mimic what Schuck & Ward (2008) refer to as “Political Statements” (statements by inmates about the justice system) and what Upton et al. (2017) might classify as “Denial”. The similarity in the clusters found organically via LDA topic modelling in this study and those that arose from qualitative discourse-based approaches lends credence to the notion that final statements and their embedded content reflect a genuine shared psychological experience.

Table 2. Reconstructed storylines per topic cluster

Topic Cluster	Grand Storyline
<i>Rage</i>	I just want to say I never got justice . I don't deserve my time on death row , and the world should think about catching the real criminals.
<i>Resignation</i>	I want you all to know that I love you. Thank you mom, everyone, everybody. Take care. I'm going, that's life.
<i>Regret</i>	To my friends, family and the victims, I am sorry . I hope you can find it in you to forgive me , and find peace in your hearts . I know I caused pain to all of you, I just want to say I am sorry .
<i>Religion</i>	Father God, Lord Jesus , I ask that you forgive my sins. I thank you for the gift of life and all its blessings . Please bring me home to you in heaven .
<i>Resistance</i>	They are killing an innocent man . Keep strong , my brothers . Don't let these people continue to make murderers out of innocents . I love you, always .

Rage

In contrast to Terror Management Theory's proposition that most inmates focus on accepting and rationalizing the circumstances of their death, quite a number of inmates seem to spend their final statements actively decrying the justice system and vehemently reiterating their innocence. Certain inmates go as far as proclaiming they were framed for the crime and use their final statements to explicitly name the "true perpetrators". Others direct their anger towards the justice system more broadly, appealing to flaws in the trial system, biases of the judge, and so on. In particular, this topic contained a number of inmates who explicitly directed their anger towards specific authority figures, frequently the police: "*The only reason I was convicted is because I was a Mexican and he was a police officer,*" "*I am not guilty, I acted in self defense against a police officer who was out of control,*" "*They tried to cover up that thousands were wrongfully convicted by the District Attorney.*" The statements in this cluster, unlike those under the *Resistance* cluster, do not necessarily express a call for collective action or "changing the system". The emphasis is more on the unfairness the inmate was personally subjected to. These all suggest that contrary to TMT's supposition that

inmates come to terms with their death, those who continued to hold particularly unwavering beliefs in their own innocence were more likely to express intense outrage than positive emotion.

Resignation

Previous literature studying expressions of guilt in inmates' final statements has treated the matter as largely binary (Schuck & Ward, 2008)—inmates either accept their guilt, or reject it. The clusters found in this study, however, suggest that acceptance may lie more on a spectrum between rage and active denial, and apologetic acceptance. The second cluster interestingly seems to contain statements of inmates who do not openly admit fault for their convictions, but also face their execution with an attitude of passive acceptance (in contrast to those from the first cluster). Statements from this cluster seem to focus on saying goodbye to loved ones, “going” to a better place, and “seeing” them in the next life. *“I just want to tell my mom I love her and I’ll see her in the next life.”* While a number of statements contain religious references, these seem to be more about “going to Heaven” and “being with loved ones” than directly talking to a supreme being. The statements in this category also seem shorter and more direct than in the others. They often end with phrases like *“That’s all”*, *“I’m done”*, and *“I’m ready”*, indicating an acceptance of the finality of their execution and the futility of trying to fight to the end. These statements most align with the core proposition of Terror Management Theory that by defocusing on their deaths and the circumstances that lead to their executions, inmates are able to resign themselves to what awaits them.

Regret

The third cluster contains statements very explicitly professing regret and asking for forgiveness. Interestingly, a number of inmates appeal for forgiveness from both their victims

and their own loved ones (“*I am sorry for the pain I have caused you*”). Several also went on to talk about how they had changed during their time in prison and refer to their past actions almost as if they were committed by a different person (“*I am not the same reckless kid from 19 years ago*”). Statements from this cluster seem to express a more total acceptance of fault as compared to those from the other clusters which are often of the form “*I am sorry for my actions, **but** I do not deserve this.*” All-in-all, this suggests that a number of inmates *do* come to accept their guilt and use their final statements to attempt to emphasize that they have been reformed or present themselves as deeply remorseful.

Religion

While all of the clusters contain some texts which include religious imagery, the texts in this cluster are structured more as direct conversations with God or some higher being. Many inmates use their final statements to recite a prayer, religious hymn, or Bible verse. Some, in a similar manner to those under the *Regret* cluster, appeal for forgiveness of their sins and talk about their crimes in a more religious tone. Others however, use religious imagery to decry the injustice of execution—referencing Christ’s execution or talking about how the death penalty violates the “forgiveness of all sins”. This suggests that inmates may appeal to religious imagery to make very different points about their execution to the public, and that religiosity does not necessarily correspond with the acceptance of guilt. The texts classified under this cluster seem to all use Christian religious imagery. While there are statements that explicitly reference Allah or Islam, these were notably included in the *Rage* cluster instead (likely because of other parts of the text).

Resistance

As with their degree of acceptance of guilt, even within inmates who defiantly proclaim their innocence there seems to be a spectrum of perceptions about the degree and nature of injustice that led to their “wrongful” execution. In contrast to statements from the first cluster which seem to express more directed rage at a set of individuals inmates can pinpoint as being the cause of their wrongful convictions, the fifth cluster features texts that emphasize the structural nature of injustice: “*There is a lynching in America tonight*”, “*the death penalty is murder*”, “*I owe society nothing*”. These suggest some inmates view their executions as being more the result of *societal oppression* than the direct influence of a few malicious actors. This cluster also contained explicit references to racial solidarity and prejudice in the justice system. A number of statements under this cluster were also directed to loved ones, but rather than to “*take care*” as with the second cluster, the dominant messaging seemed to be to “*keep strong*”—again suggesting an appeal to collective identity and shared struggle. This cluster seems most directly reflective of the supposition that last statements are a means of constructing meaning from the bleakness of execution. Inmates under this cluster seem to view themselves and their deaths as being part of a larger cause. Is a keen awareness of the legacy their message might leave and a call for action to remedy oppressive structures.

2. Clustering by Racial Demographics

Across all inmates listed in the dataset with final statements (N = 470), there are only 4 main subcategories present under the **race** demographic. The highest are the **white inmates** with a total of 202, followed by **black** or African-American (N = 170), **Hispanic** (N = 94), and a general cluster of **others** (N = 4). Given the low number of individuals whose race

attribute was not specified (others), we dropped this category and only focused our clustering by racial demographics on the first three mentioned.



Fig 4. Word cloud of inmates' last words by major racial group

Description: The word cloud contains the most common words left in the extraction after text preprocessing methods were applied into the last statements of inmates, aggregated by racial groups mainly (a) **African-American (black)** [left], (b) **White** [middle], and (c) **Hispanic** (right).

Presented in Figure 4 are the word clouds of the top 200 words present in their last words, aggregated by their racial features, and colored with green, with the most frequently used **30** words colored in darker colors and larger font size for emphasis. Across all racial groups, it appears that the word *love* is still the most frequent word to appear in their final statements, as well as expressions that are catered towards the involved parties like *family*, *sorry*, *know*, *want*, and *God*. Interestingly, the word “*sorry*” appears to be more common in White and Hispanic groups versus the African-American, but the latter had more unique words such as “*life*”, “*hope*”, “*going*”, and “*strong*”, which are infrequently used in the other clusters.

Afterwards, a topic modeling was also done for each racial category to better understand how most frequent words are distributed among last statements. Presented in Figure 5 is the perplexity plot versus number of clusters among all race attributes. Using the elbow method, the plots suggest that the most optimal choice of clusters to use in topic modeling is $k = 3$, as the compensation on increasing more clusters toward decreasing perplexity is not significant.

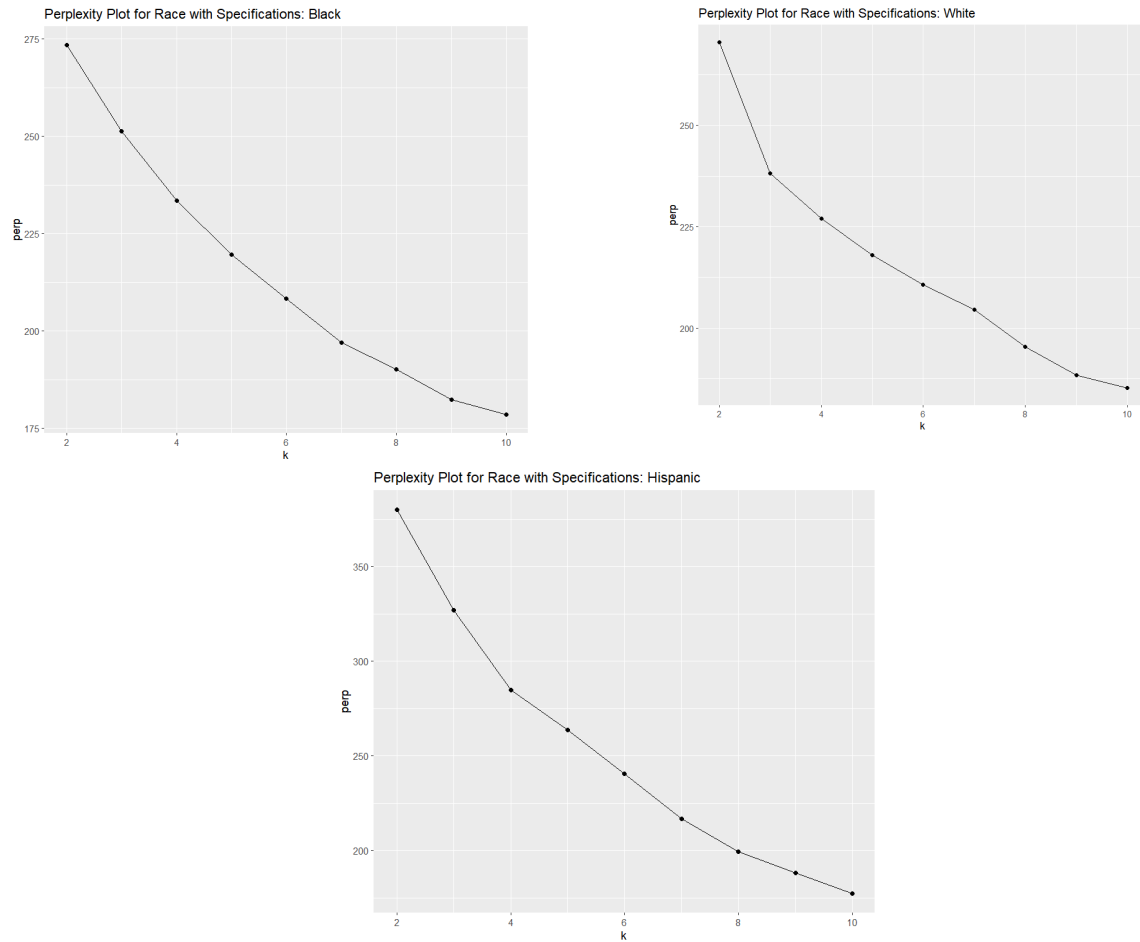


Fig 5. Perplexity plot versus number of clusters across major racial groups

LDA was similarly utilized to do text clustering and final statements are categorized among each cluster depending on the similarity of the words in the statement versus the words that are highly correlated with a specific cluster. The summary of clusters and its interpretation are presented in Table 3 and Table 4, respectively.

In our group's interpretation of the clusters generated by LDA, there are only five unique clusters present and gravitate towards a specific thought: retrospection, recognition, respect, religion, and repentance. Interestingly, African-American and Hispanic clusters contain one cluster, namely recognition and repentance, respectively, that is not present among the others. This could indicate that the LDA was able to detect differences among the final statements for each racial attribute as well as defining features of the attribute itself

which are significant enough to be categorized in another cluster. To further expound the similarities and differences among each interpreted cluster, the top words present for each racial subcategory will further be analyzed.

Table 3. Summary of clusters generated from LDA topic modeling

Racial Category	Cluster 1	Cluster 2	Cluster 3
African-American (Black)	Retrospection	Recognition	Respect
White	Retrospection	Religion	Respect
Hispanic	Repentance	Religion	Retrospection

Table 4. Interpretation of cluster naming

Cluster Name	Interpretation
Retrospection	Inmates' final statements are generally gravitated <i>toward their own family</i> , with mentions about their realizations on <i>life</i> and their impending <i>death</i>
Recognition	Inmates recognize the <i>limited time</i> that they have before execution; statements which mention their own race (black) and how it could be the reason of their persecution also fall in this category
Respect	Inmates express regrets to their wasted life, as well as recognizing the family of the victims (which may or may not mention repentance)
Religion	Inmates generally invoke higher deities like God, Jesus, Lord, and other terms to absolve them from their sins toward salvation or requesting for guidance and love toward affected parties
Repentance	Inmates express repentance toward the victims, invoking feelings of being sorry or expressing ideas of regrets

a. African-Americans

Table 5 presents the top words present among the clusters interpreted for African-American demographic, together with a sample final statement to have an idea on how the cluster differs from another. From the table, one can observe that the cluster of retrospection consists primarily of words that describe what they want to say to their family and victims' family, invoking words such as *forgive*, *sorry*, and *hope*—things that are present in the sample final statement. Meanwhile, recognition revolves around the realizations of the event itself, how the involved parties must *continue forward* after their *death*, and how their attribute as *black* affected the verdict of their case. Lastly, final statements under respect try

to invoke emotional statements that recognize their family and life, using words such as *family*, *sorry*, and *known* as means to express their emotions.

Table 5. Summary of clusters for African-American inmates

Cluster	Top Words	Sample Final Statement
Retrospection	love, family, thank, like, god, sorry, forgive, know, will, hope, lord	<i>To the Davis family, I am sorry for all of the pain that I caused your family. It was me and me alone. Anthony Graves had nothing to do with it. I lied on him in court. My wife had nothing to do with it. Anthony Graves don't even know anything about it. My wife don't know anything about it. But, I hope that you can find your peace and comfort in strength in Christ Jesus alone. Like I said, I am sorry for hurting your family. And it is a shame that it had to come to this. So I hope that you don't find peace, not in my death, but in Christ...</i>
Recognition	will, love, keep, people, must, continue, death, forward, know, tonight, black	<i>I would like to say that I did not kill Bobby Lambert. That I'm an innocent black man that is being murdered. This is a lynching that is happening in America tonight. There's overwhelming and compelling evidence of my defense that has never been heard in any court of America. What is happening here is an outrage for any civilized country to anybody anywhere to look at what's happening here is wrong. I thank all of the people that have rallied to my cause. They've been standing in support of me...Keep moving forward, my brothers. Slavery couldn't stop us... We will not stop tonight. We will go forward.</i>
Respect	love, know, want, don, say, family, just, like, one, life, sorry, going, didn('t)	<i>First, I want to let my mom know not to cry, there is no reason to cry, everybody dies. Everybody has their time, don't worry about me. I'm strong. To my family: my old man, my kids, daddy is sorry. I love each and every one of you. I'll be looking for you. To my wife, I love you. The last two years have been the best...</i>

The high presence of certain words like *justice*, *forward*, *death*, *continue*, and *forgive* on top of typical words expected from final statements (*family*, *love*, *sorry*) is an indicator of what Hirschmüller and Egloff (2018) described as meaning-making. That is, in the final moments of their life, they try to make sense of the experiences that they have with the past, crime committed, and how such events contribute to their current situation. This is more prominent in the clusters of retrospection and respect, where the sample statements put the attention not on the crime done but on how the inmate interprets the agony in relation to the parties involved. However, inmates whose final statements fall under the recognition cluster are more gravitating towards reclaiming their agency and self-worth before their execution,

an expression mostly associated with Terror Management. Rationalizations about racial categories as a reason for their conviction is a reflection of their constructed judgment about their execution. However, such statements end toward a positive note, with hopes of racism ending anytime soon. Nevertheless, this argument supports our initial hypothesis that racial features can affect how people construct their final statements—but in this case, as a means to express a possible causality to their conviction.

b. White

Table 6, meanwhile, summarizes the LDA topic modeling for the white racial category. The same interpretation for retrospection and respect is seen in this group as the former still evokes feeling of *love*, *thankfulness*, and *hope* towards their family and wife while the latter recognizes the overall situation the inmate is in, using words such as *people*, *sorry*, and *know* to characterize what they feels about it. Contrariwise, the religion cluster shows the relationship between the inmate to their own *god* (*Jesus*, *Lord*, etc.), wherein they ask for closure about the crime. This includes either asking for forgiveness for their action or healing towards the parties affected—notions that are present in the sample text.

An interesting insight present in the White racial category is on how religion became a significant notion that it became a separate cluster as compared to a rather diverse spread of religion in clusters for African-Americans. This could mean that in the latter moments of their life, these inmates would rather want to cling on to the higher deity for salvation and possibly repentance. However, this is not to say that the previous race cluster is not religious per se. In fact, a paper by Taylor et al. (1996) argued that African-Americans have higher levels of religious participation than Whites. A possible scenario that occurred here is that notions of *God* and *Lord* may not be used as a means to rationalize the crime done, but as a

deity that should be recognized as a part of their identity, thereby operationalizing religion as an ubiquitous theme that must not only be recognized in darkness.

Table 6. Summary of clusters for White inmates

Cluster	Top Words	Sample Final Statement
Retrospection	love, thank, like, will, want, now, hope, just, father, much, know	<i>Yes, sir. Jennifer, I love you. Mom, I love you. Rick, take care of you. For all of you people, I defended myself when I killed your family member. Prison is a bad place. There was eight against me. I didn't set out to kill him. I am sorry that I killed him, but he would not have been in prison if he was a saint. I hope ya'll understand that. I love you, baby. I hope people understand the grave injustice by the state. There are 300 people on death row, and everyone is not a monster. Texas is carrying out a very inhumane and injustice. It's not right to kill anybody just because I killed your people. Everyone changes, right?....</i>
Religion	family, sorry, god, lord, love, know, like, forgive, jesus, thank, life	<i>Dad, I love you both. You've been the best. All of you, all of you have truly been the best. And ah, I believe I'm going home. I'm sorry, and I really mean that, it's not just words. My life is all I can give. I stole 2 lives and I know it was precious to ya'll. That's the story of my whole life, that's what alcohol will do for you. Oh Jesus, Lord God, take me home. Precious Lord. Take me home Lord. Take me home. Yes, sir. Take me home oh Lord.</i>
Respect	know, will, say, don('t), want, get, people, sorry, one, got, can, let, done, back	<i>They did everything but make sure I got a fair trial to prove I was innocent. I wasn't the one who had the gun to give to police and all these altered records from the District Attorney's office and the Attorney General's office, that's why Michael Sputnick got fired and ran off when I filed these appeals... But that's okay. All this evidence is being saved, so Jack King can laugh all he wants like he's the big hero, after this is over with, that's fine. But the person that had the gun, they know was not Thomas Mason... That's all I got to say.</i>

c. Hispanics

Table 7 now summarizes the topic modeling done for Hispanic groups. The same general interpretation for religion and retrospection is also applied in this racial category, with the exception of the religion at which it now consists of more faith-related terms such as *holy*, *time*, *innocent*, and *father* to consider a more diverse perspective on religion and salvation. However, this group had a separate cluster for repentance which, as seen in the table, indeed consist primarily of words such as *sorry*, *forgive*, *pain*, and *family* that primarily gravitate

towards asking for forgiveness and repentance for the crime done. This is most seen in the sample text where the inmate directly expressed their apology to the victims.

Table 7. Summary of clusters for Hispanic inmates

Cluster	Top Words	Sample Final Statement
Repentance	love, thank, family, sorry, will, know, want, god, forgive, like, pain	<i>First of all, I would like to apologize to the family members of the Cadena family for whatever hurt and suffering I have caused you. This opportunity has never come up before. It's not that I haven't been remorseful, things just never worked out before. Please forgive me and I hope you find it in your heart to forgive me. The peace you will find will be a temporary peace, true peace will come through find Christ. I pray through this execution, that you will find the peace you seek...</i>
Religion	holy, love, god, will, say, thy, time, now, innocent, one, know, father	<i>I wish we could pray to Allah, the father of the universe. I ask for your protection and my salvation, my night and my day. I want you to lead me and I will follow. We give praise to Allah the divine and holy prophet. We know that you are Allah, that you are the prophet in these days that is in charge of the human race in this new era of time. These two (unintelligible) to the masters of the temple of the son we have been honored to dwell in our father's house at least for the time in which this finite time has come to it's assigned time for one....</i>
Retrospection	love, family, can, hope, know, tell, say, want, thank, sorry, everybody	<i>First I would like to say I have been here since September 2005. I had the honor and privilege to know many prison guards and staff. I want to thank all of them. I would like for everyone to write the people on death row as they are all good men and I am very happy I got to know them. All of their lives are worth knowing about...</i>

Similar to the interpretations done for the White race, religion still plays a crucial role on how the Hispanics do meaning-making in the final moments of their life, invoking Allah and God as a beacon of their repentance. Interestingly, Hispanics mostly utilize the notion of religion to pray for forgiveness—both for the crime done as well as to the family of the victims. Another interesting insight from here is that Hispanics and Whites do not talk about their racial figures in their final statements, as opposed to what the recognition subcluster for the African-Americans. This could mean that these inmates who fall in the last two racial identities may not see their skin color as a reason for their conviction and are completely independent of their execution. This, in return, could be an evidence of their own inward meaning-making towards their own characteristics.

3. Clustering by Educational Attainment

Out of the 470 people who provided a last statement, the table below shows the distribution of educational attainment (i.e., number of years of education):

Table 8. Frequency table of the number of years of education of inmates

Number of years of education	Count	Number of years of education	Count
0	1	10	74
3	2	11	78
4	1	12	99
5	3	13	6
6	10	14	14
7	22	15	4
8	54	16	3
9	70	NA	29

Since there was no way to ascertain the educational attainment of the 29 inmates with NA, these rows were dropped. To provide a better framework to the analysis, the inmates were grouped into three:

1. having 8 or fewer years of education, which corresponds to not starting high school (9th grade) in the United States (N = 93)
2. having 9–11 years of education, which corresponds to starting, but not finishing, high school in the United states (N = 222), and
3. having 12 or more years of education, which corresponds to finishing high school (12th grade) in the United States (N = 126).

These three categories are named "Low", "Middle", and "High", respectively.

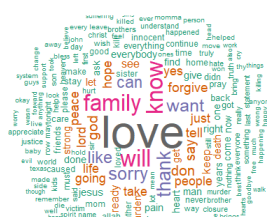


Fig 9. Word clouds of inmates' last words by educational attainment: low (left), middle (middle), and high (right).

Table 10. Top 15 words per cluster per educational category

Educational Category	Cluster 1	Cluster 2	Cluster 3
Low	love, want, family, tell, say, people, know, don't, life, sorry, warden, like, god, thank, will	god, sorry, want, know, just, forgive, lord, father, love, family, can, say, will, done, peace	love, thank, like, family, know, god, hope, will, take, can, see, mom, death, going, apologize
Middle	love, family, thank, sorry, like, know, tell, god, peace, yes, ready, want, can, hope, warden	will, forgive, sorry, please, ask, pray, can, family, death, lord, love, hope, back, like, don't	love, know, people, will, want, right, keep, don't, man, say, get, going, didn't, innocent, now
High	love, family, god, will, one, know, don't, life, day, man, want, like, yes, strong, give	sorry, like, lord, know, god, family, christ, jesus, say, love, thank, see, ask, forgiveness, forgive	thank, love, family, want, just, hope, can, will, know, say, like, keep, peace, people, going

Preliminary analysis shows the word clouds in Figure 9 and the specific top words in Table 10. Similar to what was observed in the whole dataset, the top words include *love*, *family*, *God*, *will*, *thank*, *know*, and *want*, among others. None of the top words seem to be unique to each educational category. This seems to suggest that there are minimal differences in the words used across educational categories. Next, topic modeling is performed to check this hypothesis. The perplexity plots for each educational category (EducCat) suggest three clusters, as shown in Figure 11.

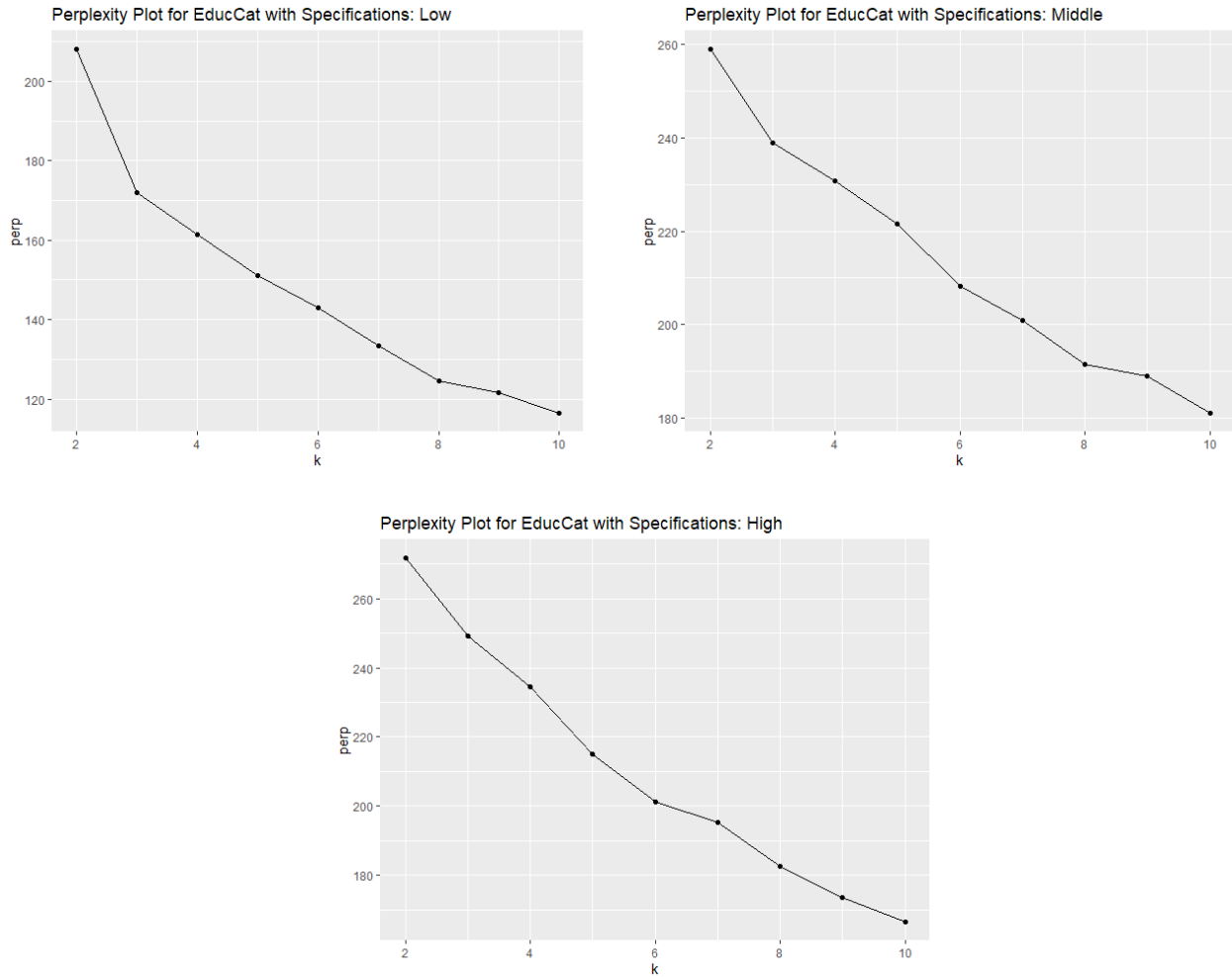


Fig 11. Perplexity plot versus number of clusters across educational categories

Unlike the distribution of topics in the racial category, the topics across clusters and across educational categories do not seem to be clustered well. For each of the nine clusters (three educational categories times three clusters each), the five texts which have the highest probability of being in the cluster were perused. More sample texts (five, instead of three) were chosen due to the diversity of the topics per cluster, which involves two or more of the following: 1) inmates talking about or directly addressing their family and friends, 2) religious references, such as God and biblical texts, 3) repentance and regret addressed to the victim's loved ones as well as one's own loved ones, and 4) rage towards the killing or injustice, and the denial of one's crime. (The five texts chosen are listed in the appendix.)

This agrees with the hypothesis presented above, that one's skill in language and expression does not really depend on how long they attended a formal educational institution.

Several reasons may be posited for the lack of association between educational level and the last statement given by an inmate. First, even before the scheduled execution day, the living conditions in the death row prison are not conducive to learning because of the lack of social interaction as well as the mental pressure. The human senses are dulled; in particular, the 60-square-foot cells have few and narrow holes, and there are endless sounds of shouting and banging (Mann, 2015). This is exacerbated by the fact that the average time that an inmate stays on death row is 11.22 years (Khou 11 Staff, 2022); all these contribute to the decline of the inmates' mental health. Even though inmates have access to reading materials (TDCJ, 2013), the environment is hardly conducive for learning, thus resulting in their educational stagnation.

Another set of reasons relate to the events that happen during the execution day. During an emotionally intense situation such as the one which faces the inmates, one would revert to simpler words. This is supported by the fact that the statements are mostly prosaic as contrasted to poetic (with the biblical texts being the main exception), and the sentences used in the statements are short and straightforward. Moreover, inmates sometimes address the statements to their children, which may suggest that simplification of speech is for the children to understand; one of them addresses it to the media. In fact, Oppenheimer (2006) suggests that the usage of complicated words to suggest intelligence usually results in being evaluated by others as less intelligent, which could also be why the inmates in the high educational category group do not emphasize their vocabulary.

Despite having the same methods for race and education, the findings may have been different because race may contribute to being in the current situation of being about to be killed, however, there is no analogous idea when it comes to education. This could explain

why there were black people who mentioned their race and expressed their anger, while few, if any, explicitly mentioned their educational background in their last statements.

V. Conclusion

Amjad and Rrafi (2017) argue that the dominant approach to understanding the psyche of convicts, and death row inmates in particular, has been largely reductive. Prevailing literature has implicitly assumed that last words reflect some universal aspect of human nature or the totalizing experience of death row, without considering how inmates' lived experience prior to their conviction may shape their outlook. Inmates and their final statements must be viewed not as the output of a psychological black box, but as a product of both their lived experience and the ritual of death row.

This study advances our understanding of the psycholinguistics of death row in two key ways. First, by adopting an inductive topic-model approach, it opens the possibility of identifying themes and subthemes that organically arise from the texts as opposed to relying solely on human judgements as a means of classifying statements. Crucially, our findings corroborate the sentiment categories identified by previous qualitative discourse analysis studies (Schuck & Ward, 2008; Upton et al., 2017). The major themes we identify challenge the view that last words serve a solely Terror Management function, with statements of *Rage* and *Resistance* suggesting a far more complex process of meaning creation. We argue that the process of meaning creation in final statements is more accurately described through a dramaturgical lens—with inmates addressing their final statements *to* a specific party in their lives (be it God, their loved ones, or even a broader notion of “community”) rather than being purely introspective. Inmates, even in their final moments, know they are on “stage.”

Secondly, results of the demographic based topic clustering reveal that not only are there variations in the themes expressed by inmates of different races, but there are also

nuanced differences and subtopics in the ways they express the same sentiment. “Religious” statements are phrased differently by white versus black or hispanic inmates. Our findings reveal that inmates of minority backgrounds seem particularly aware of their race plays in their persecution and actively identify their racial attributes in their final statements. They were more likely to view themselves as being victims of an unjust *system* rather than a one-off product of miscarried justice. These findings provide a foundation for investigating racial disparities in perceptions of guilt and justice.

This is not to suggest that race is the sole determinant of the sentiment or tone of final statements. Much future work could be done expanding on the demographic based topic clustering done here—examining how features such as geography, generation, marital status, or even family background impact how inmates view the end of their lives. It would be particularly interesting to relate the content of final statements to the trial process experienced by the inmate. Would inmates who fought long and hard appeals, for instance, be more likely to express contempt for the justice system? Would inmates who were able to hire a private defense attorney be more resigned than those who received a public defender?

The findings of this study could also be greatly expanded upon by investigating new, rich, and varied datasets. While many states around the world continue to enforce capital punishment, unfortunately very few maintain records that can be quantitatively analyzed. An analysis of sentiments about the justice system could be conducted, however, using more than just final statements. Inmate interviews, public comments to highly publicized trials, and so on could all provide rich sources of data.

In his final moments, the French writer Francois Rabelais is quoted saying “*Bring down the curtain—the farce is over.*” Perhaps the farce was all there ever was, and all that will ever be remembered.