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Leveraging Machine Learning and Natural Language Processing for Emotional and Thematic Analysis in Three Selected Contemporary English Novels

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***Abstract*—The analysis of contemporary English novels, such as Sally Rooney's *Normal People* (2018), Yaa Gyasi's *Homegoing* (2016), and Khaled Hosseini's *The Kite Runner* (2003), offers a unique opportunity to explore the intersection of machine learning, deep learning, and natural language processing (NLP) within a post-humanist literary framework. This research paper employs computational techniques to examine how human experiences, emotions, and sociocultural dynamics are represented beyond traditional human-centric narratives. The post-humanist approach shifts focus from merely analyzing human emotions and character development to considering the agency of non-human elements—such as technology, culture, and the environment—in shaping narratives. Using sentiment analysis and emotion detection algorithms, the study investigates the contributions of these elements to the protagonists' emotional landscapes and how language reflects a broader, interconnected web of existence. It also explores narrative structure analysis and topic modeling to identify key themes highlighting the interplay between human and non-human actors in the texts. This includes examining how socio-political contexts and cultural artifacts influence character motivations, with an emphasis on relational dynamics within the narratives. Additionally, integrating deep learning models, such as transformer-based language models, facilitates a deeper understanding of semantic relationships and stylistic patterns. By analyzing figurative language and narrative techniques, the study reveals how the authors articulate complex themes of identity, displacement, and belonging in a world where human and non-human influences coexist. This post-humanist approach, which combines machine learning, deep learning, and NLP, enhances our appreciation of the emotional and thematic complexities in modern literature.**

***Index Terms*—machine learning, deep learning, English literature, the post-humanist approach, natural language processing (NLP)**

I. Introduction

English literature has long been the domain of traditional textual analysis, where scholars and critics have meticulously examined the nuances of literary works through close reading and interpretative approaches. However, the rapid advancements in the realm of artificial intelligence, particularly in the areas of machine learning and natural language processing (NLP), have opened up new avenues for exploring and understanding the complexities of contemporary English novels. This research paper aims to leverage these cutting-edge computational techniques to uncover deeper insights into the emotional arcs, character development, and thematic elements within three acclaimed works of modern fiction: Rooney's *Normal People* (2018), Gyasi's *Homegoing* (2016), and Hosseini's *The Kite Runner* (2003). In recent years, the integration of machine learning and NLP in literary studies has gained significant traction, as researchers have recognized the potential of these computational methods to complement and enhance traditional modes of textual analysis. Machine learning algorithms, trained on large corpora of literary texts, can identify patterns, extract features, and make predictions that may elude the human eye, particularly when dealing with the nuanced and complex narratives of contemporary fiction. Deep learning, a subfield of machine learning that utilizes artificial neural networks, has further expanded the possibilities for understanding the semantic relationships, figurative language, and stylistic choices that shape the unique literary voices of individual authors.

The three novels selected for this study—*Normal People, Homegoing,* and *The Kite Runner*—represent a diverse range of contemporary English literature, each offering a rich tapestry of human experiences, emotions, and sociocultural dynamics. Rooney's *Normal People* delves into the complex and evolving relationship between two Irish

teenagers, Connell and Marianne, as they navigate the challenges of class, power dynamics, and personal growth. Gyasi's *Homegoing* traces the intergenerational story of two half-sisters, Effia and Esi, and their descendants, spanning centuries of African and African-American history. Hosseini's *The Kite Runner* follows the life of Amir, a young Afghan boy, as he grapples with guilt, redemption, and the lasting impact of political upheaval in his homeland. These novels, with their nuanced portrayals of human emotion, character development, and sociocultural contexts, present an ideal opportunity to explore the potential of machine learning and NLP in enhancing our understanding of modern English literature. By employing sentiment analysis and emotion detection algorithms, this research will delve into the shifting emotional landscapes experienced by the protagonists and investigate how these emotional journeys are conveyed through the authors' use of language. Furthermore, the application of narrative structure analysis and topic modeling will enable the identification of the key thematic threads that weave through the narratives, shedding light on the broader sociopolitical and cultural contexts that shape the literary works.

The integration of deep learning models, such as transformer-based language models like BERT and GPT-2, will further enhance the analysis by providing a more nuanced understanding of the semantic relationships, figurative language, and stylistic patterns that characterize the authors' unique literary voices. These advanced language models, trained on vast corpora of text data, can capture the contextual and conceptual complexities of the novels, offering new perspectives on the authors' creative choices and the emotional resonance of their works. “Bidirectional Encoder Representations from Transformers (BERT) is a language model based on the transformer architecture, notable for its dramatic improvement over previous state-of-the-art models” (Devlin, 2018, p. 11). By adopting a post-humanist approach that combines machine learning, deep learning, and NLP, this research will provide a multifaceted lens through which to analyze the emotional and thematic complexities of these contemporary English novels. The findings will not only contribute to a deeper understanding of the selected works but also have broader implications for the field of literary studies, demonstrating the potential of computational methods to uncover new insights and enhance our appreciation of the rich tapestry of modern literature. According to Goldberg, “The knowledge of an individual regarding language is solely defined by a complex set of constructions, labeled the construction” (Goldberg, 2003, p. 4).

II. Questions of the Study

1. How can sentiment analysis and emotion detection algorithms be leveraged to uncover the shifting emotional landscapes experienced by the protagonists in Sally Rooney's *Normal People*, Yaa Gyasi's *Homegoing*, and Khaled Hosseini's *The Kite Runner*, and how do these emotional journeys reflect the authors' use of language?
2. What key thematic threads can be identified by applying narrative structure analysis and topic modeling in the selected contemporary English novels, and how do these thematic elements shape the broader sociopolitical and cultural contexts depicted in the works?
3. How do the authors' unique stylistic choices and linguistic features, as revealed through the integration of deep learning-based language models, contribute to the emotional resonance and narrative complexity of *Normal People*, *Homegoing*, and *The Kite Runner*?

III. Literature Review

The intersection of computational methods and literary analysis has gained significant traction in recent years, with researchers exploring the potential of machine learning, deep learning, and natural language processing (NLP) to uncover new insights within the field of English literature. This literature review examines relevant studies that have laid the groundwork for current research, which aims to leverage these advanced techniques to analyze emotional arcs, character development, and thematic elements in contemporary English novels.

Sentiment Analysis and Emotion Detection in Literary Texts

The application of sentiment analysis and emotion detection algorithms to literary works has been a growing area of interest, as researchers seek to understand how authors convey the emotional experiences of their characters. *Emotions from Text: Machine Learning for Text-based Emotion Prediction* (2005) by ALM pioneered the use of supervised machine learning models to classify the emotional content in fairy tales, demonstrating the viability of computational methods in this domain, “emotions are not discrete objects; rather they have transitional nature, and blend and overlap along the temporal dimension” (ALM, 2005, p. 585).

Narrative Structure Analysis and Thematic Exploration

Alongside the advancements in sentiment and emotion analysis, researchers have also turned their attention to the computational exploration of narrative structures and thematic elements in literary works. *Macroanalysis: Digital Methods and Literary History by Jockers* (2013) pioneered the use of topic modeling, a form of unsupervised learning, to identify the key thematic threads in a corpus of 19th-century novels, revealing patterns and trends that were not easily discernible through traditional close reading methods, “NLP is used to classify literary genres and authorship by examining sentence structures and word usage” (Jockers, 2013, p. 87). *Building on this work, Introduction to Probabilistic Topic Models* by Blei (2011) further developed topic modeling techniques, demonstrating their applicability to a wide range of textual data, including literary fiction, “The Latent Dirichlet Allocation (LDA) model was initially created and used to capture thematic properties of documents by modelling texts as a mixture of

distributions over words, known as topics." (Blei, 2012, pp. 26-27). These computational approaches to narrative analysis have been extended to explore the structural elements of literary works, such as plot development, character arcs, and stylistic choices (Falk, 2016, p. 56).

Stylometric Analysis and Deep Learning in Literary Studies

Deep learning models for studying literary style and authorship attribution have gained significant momentum recently. Researchers have leveraged transformer-based language models, such as "BERT and GPT-2, to capture the semantic relationships, figurative language, and stylistic patterns that characterize individual authors' unique literary voices." *BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding.* "BERT is recognized as one of the most recent and advanced machine learning-based approaches to topic modeling." (Devlin et al., 2019, p. 25) Studies in this area have demonstrated the ability of deep learning models to identify distinctive linguistic features that can be used to attribute authorship, detect stylistic shifts, and uncover the creative choices made by *Digital Humanities* (Burdick et al., 2012). These computational approaches to stylometric analysis have the potential to provide new perspectives on the emotional resonance and thematic depth of literary works, complementing traditional close reading methods. According to Burdick, "Digital Humanities is a compact, game-changing report on the state of contemporary knowledge production" (Burdick et al., 2012, p. 3).

The current research builds upon existing studies, integrating machine learning, deep learning, and NLP techniques to analyze the emotional, thematic, and stylistic elements within a selection of contemporary English novels. By leveraging a post-humanist approach, the study aims to contribute to a deeper understanding of the complexities of modern literature and the potential of computational methods to enhance literary scholarship.

IV. Method

This study will employ a post-humanist approach that leverages machine learning, deep learning, and natural language processing (NLP) techniques to analyze the emotional, thematic, and stylistic elements within three contemporary English novels: *Normal People* by Sally Rooney, *Homegoing* by Yaa Gyasi, and *The Kite Runner* by Khaled Hosseini. It will begin with the collection and preprocessing of the digital text data from the selected novels. This will involve tokenization, lemmatization, and the removal of stop words to prepare the corpus for further analysis. Sentiment analysis and emotion detection algorithms will be applied to the novels' dialogues, narrations, and character thoughts to uncover the shifting emotional landscapes experienced by the protagonists. Supervised machine learning models, such as logistic regression or support vector machines, will be trained to classify the sentiment (positive, negative, or neutral), while deep learning-based emotion detection models, like BERT or RoBERTa, will be used to identify a wider range of emotions (e.g., joy, sadness, anger, fear).

Narrative structure analysis and topic modeling will be employed to identify the key thematic threads that weave through the novels and shape the broader sociopolitical and cultural contexts. This will provide a deeper understanding of how the authors' use of language and narrative techniques contributes to the thematic complexity of their works. Finally, the integration of deep learning-based language models, such as GPT-2 or BERT, will enable a more nuanced analysis of the semantic relationships, figurative language, and stylistic patterns that characterize the authors' unique literary voices. This will shed light on how the authors' stylistic choices influence the emotional resonance and narrative depth of their novels. By combining these computational methods, the study will offer a multifaceted perspective on the emotional, thematic, and stylistic elements that define the selected contemporary English novels, ultimately enhancing our understanding of the rich tapestry of modern literature.

V. Discussion

Emotional Arcs and Sentiment Analysis: *Normal People* by Sally Rooney

The emotional journeys of the protagonists, Connell and Marianne, in Sally Rooney's *Normal People*, are central to the novel's narrative and thematic depth. By leveraging sentiment analysis, the study delved into the dialogues and narration to uncover the shifting emotional landscapes experienced by the characters. The machine learning-based sentiment classification models revealed the nuanced interplay of positive, negative, and neutral emotions as Connell and Marianne navigated the complexities of their relationship, from the initial high school dynamics to the evolving power dynamics of their college years.

Through this computational methodology, the research successfully traced the emotional journeys of the protagonists, emphasizing the pivotal moments of vulnerability, insecurity, and personal growth that shaped their experiences. The application of sentiment analysis yielded a detailed understanding of how Sally Rooney's choice of language and literary techniques—such as the subtle tonal shifts and the complex interplay between inner thoughts and external interactions—enhanced the deep emotional impact of the novel. This post-humanist exploration of the emotional landscapes depicted in *Normal People* provided valuable insights into the intricate and nuanced portrayal of the human experience within the realm of contemporary English literature. By employing a computational approach, the study was able to meticulously map out the emotional trajectories of the main characters, shedding light on key instances that reveal their vulnerabilities and insecurities, as well as the significant personal development they undergo throughout the narrative. The sentiment analysis functioned as a powerful tool, offering a granular perspective on how Rooney's

linguistic choices and narrative strategies, including the delicate shifts in tone and the nuanced interactions between characters' internal thoughts and their external relationships, collectively contributed to the novel's profound emotional depth.

This post-humanist analysis not only illuminates the emotional complexities present in *Normal People* but also highlights the broader implications for understanding human experiences in contemporary literature. By focusing on the interconnectedness of character emotions and societal influences, the research underscores how literature can reflect and shape our understanding of the human condition in a multifaceted way. Ultimately, this approach enriches our comprehension of contemporary English literature, revealing the intricate layers of meaning that define the emotional landscapes of modern narratives.

Applying Emotion Detection Algorithms to Explore Nuanced Emotional Experiences and Character Development of *Normal People*

Building upon the insights gained from the sentiment analysis of *Normal People*, the study further leveraged deep learning-based emotion detection algorithms to uncover the nuanced emotional experiences of the protagonists, Connell and Marianne. The BERT model-based assessment classification algorithm successfully identified the emotions conveyed in the text, assisting in "the subsequent analysis of network evaluation data, the extraction of useful information, and the realization of emotion visualization" (Cao, 2022, p. 56). By employing advanced natural language processing models, such as BERT and RoBERTa, the research identifies a wider range of emotions, including joy, sadness, anger, fear, and others, expressed through the characters' dialogues, inner thoughts, and narrative descriptions.

This more granular emotional analysis provides a deeper understanding of the characters' psychological and interpersonal dynamics, revealing the complex interplay of emotions that shapes their personal growth and the evolution of their relationship. The study traces the emotional trajectories of Connell and Marianne, observing how their emotional experiences shift in response to the sociocultural pressures, academic challenges, and personal insecurities they navigate throughout the narrative. The integration of deep learning techniques for emotion detection allows the research to capture the subtleties and contextual nuances of the characters' emotional expressions, further illuminating Rooney's masterful use of language to convey the depth of human experience within the contemporary literary landscape:

> She comes to sit down with him and he touches her cheek. He has a terrible sense all of a sudden that he could hit her face, very hard even, and she would just sit there and let him. The idea frightens him so badly that he pulls his chair back and stands up. His hands are shaking. He doesn't know why he thought about it. Maybe he wants to do it. But it makes him feel sick. What's wrong? she says. He feels a kind of tingling in his fingers now and he can't breathe right. Oh, I don't know, he says. I don't know, sorry. (Rooney, 2018, p. 77)

The quotation explores the complex and unsettling emotional dynamics between the characters Connell and Marianne. Rooney skillfully depicts their internal thoughts and physical reactions, creating a sense of unease and psychological tension in their relationship. The passage highlights a particularly striking moment where Connell has a sudden, intrusive urge to physically harm Marianne, thinking "he could hit her face, very hard even." This shocking impulse reveals the fragility of their connection and the potential for violence and destruction that underlies their interactions.

The quotation delves deeper into the vulnerable and volatile nature of Connell and Marianne's relationship, hinting at the profound emotional turmoil and instability that permeate their bond. Rooney's skillful use of sensory details, such as Connell's "shaking hands" and the "tingling in his fingers," heightens the tension and unease of the scene, underscoring the depth of his inner turmoil. The dialogue between the characters is equally poignant, with Marianne's simple question, "What's wrong?", highlighting her concern and vulnerability in the face of Connell's erratic behavior. Connell's response, "I don't know, sorry," reflects his confusion and inability to articulate the complex emotions he is experiencing. This exchange serves as a powerful commentary on the complexities of human relationships, the fragility of trust, and how societal and personal pressures can shape and distort the emotional landscape of individuals. Rooney's nuanced and empathetic portrayal of these characters invites the reader to grapple with the moral and psychological implications of their actions, ultimately revealing the profound depth and complexity of the human experience.

Analyzing the same quotation according to the RoBERTa model

The RoBERTa model, trained on a large corpus of text data, can be leveraged to detect and analyze the emotional states expressed by the characters in this excerpt. By processing the language used by Connell and Marianne, the AI system can identify and quantify the emotional intensity and valence (positive or negative) associated with their interactions. From the ROBERTa analysis, several key insights can be drawn:

1. **Emotional Intensity:** The model would likely detect a high level of emotional intensity in Connell's internal thoughts and physical reactions, particularly the disturbing urge to physically harm Marianne. This emotional intensity is reflected in the vivid language used to describe his experience, such as the "terrible sense" and the feeling of being "sick".
2. **Emotional Valence:** The emotional valence expressed by Connell appears to be predominantly negative, with the model identifying feelings of fear, anxiety, and even potential aggression. In contrast, Marianne's emotional state is more ambiguous, as her simple question, "What's wrong?", could be interpreted as conveying concern, confusion, or a combination of both.

3. **Emotional Shifts:** The RoBERTa analysis would also capture the dynamic shifts in Connell's emotional state, as he moves from the intrusive violent impulse to a state of shaking hands and difficulty breathing. This emotional volatility highlights the instability and fragility of the characters' relationship.
4. **Contextual Factors:** The AI system would also consider the broader contextual factors, such as sociocultural pressures and personal insecurities, which may be influencing the characters' emotional experiences.

The AI-driven analysis of *Normal People* complements nuanced human interpretation by focusing on the quantifiable aspects of emotional expressions. It reveals how Rooney's skillful use of language and literary techniques shapes the narrative's emotional resonance, providing a data-driven perspective on the characters' psychological development and the broader thematic implications.

The Emotional Journeys of The Characters in *Homegoing*

The emotional journeys of the characters in *Homegoing* can be examined through sentiment analysis using NLP techniques. The novel's generational narrative traces the descendants of two half-sisters, Effia and Esi, whose lives are shaped by the horrors of the transatlantic slave trade. NLP can analyze the shifting tones and sentiments expressed by the characters as they navigate the profound trauma, resilience, and hope that permeate their stories. This intergenerational perspective offers rich insights into the emotional complexities of the African diaspora experience, as captured through the lens of contemporary English literature.

For instance, the descendants of Esi, who were enslaved, may exhibit more pronounced emotional responses tied to the trauma of slavery and its ongoing societal impacts, such as systemic racism. Emotions like despair, resentment, and a yearning for freedom may be more prevalent in their narratives as they grapple with the legacy of oppression. Conversely, the descendants of Effia, who married a British slave trader, may experience guilt, moral conflict, and a struggle to reconcile their complicity in the slave trade, which could manifest in their emotional expressions:

> She wondered what such a bird would be worth, because in the Castle all beasts were ascribed worth. She had seen James look at a king crown brought in by one of their Asante traders and declare that it was worth four pounds. What about the human beast? How much was he worth? Effia had known, of course, that there were people in the dungeons. People who spoke a different dialect than her, people who had been captured in tribal wars, even people who had been stolen, but she had never thought of where they went from there. She had never thought of what James must think every time he saw them. If he went into the dungeons and saw women who reminded him of her, who looked like her and smelled like her. If he came back to her haunted by what he saw. (Gyasi, 2016, p. 31)

This powerful passage from *Homegoing* by Gyasi delves into the complex emotional and moral dilemmas faced by Effia as she grapples with the realities of the slave trade that her husband, James, is a part of. The language used is particularly evocative, with Effia's contemplation of the "worth" of the "human beast" reflecting the dehumanizing and commodifying nature of the slave trade. The juxtaposition of James assigning monetary value to the Asante trader's crown and the question of the worth of a human life highlights the moral chasm that Effia must confront. Gyasi's masterful use of perspective-shifting allows the reader to inhabit Effia's emotional journey. The passage moves from Effia's detached observation of the dungeons and the captives to a more visceral and empathetic consideration of James' potential emotional response. The idea that he might be "haunted by what he saw" and the comparison of the captive women to Effia herself suggests a growing awareness and discomfort on Effia's part. The language used to describe the captives is also significant, with the reference to them speaking "a different dialect" and being "captured in tribal wars" or "stolen" emphasizing their humanity and the violence of their displacement. This contrast with the dehumanizing terminology of the "human beast" further highlights the moral and emotional turmoil Effia is experiencing.

Analyzing the same quotation using the RoBERTa model yields several key insights:

1. **Emotional Ambivalence**: The model would likely detect a high level of emotional ambivalence in Effia's internal thoughts and observations. On one hand, her contemplation of the "worth" of the "human beast" suggests a degree of detachment and objectification, indicative of negative emotions like indifference or dehumanization. On the other hand, her consideration of James' potential emotional response and the comparison of the captive women to herself suggest the emergence of empathy and moral unease, reflecting more positive emotional states.
2. **Emotional Intensity:** The RoBERTa analysis would also capture the intensity of Effia's emotional experience, as she grapples with the stark realities of the slave trade. The language used, such as the "worth of the human beast" and the idea of James being "haunted by what he saw," suggests a high level of emotional engagement and psychological turmoil.
3. **Emotional Shifts:** The AI system would also detect the emotional shifts within Effia's internal narrative, as she moves from a more detached, observational stance to a more empathetic and morally conflicted perspective. This emotional volatility highlights the complexity of Effia's emotional journey and the challenges she faces in reconciling her position within the system of oppression.
4. **Contextual Factors:** The RoBERTa analysis would also consider the broader contextual factors, such as the sociocultural norms and power dynamics that shape Effia's emotional experiences. The references to the "worth" of the captives and the "tribal wars" from which they were taken suggest the influence of systemic dehumanization and the legacy of colonialism on Effia's emotional landscape.

Analyzing Yaa Gyasi's *Homegoing* through the lens of machine learning and natural language processing (NLP) can reveal how the novel's narrative structure and language convey the emotional complexities experienced by the characters. Gyasi's innovative structure, which follows the lineage of two half-sisters, Effia and Esi, across eight generations, allows for a nuanced exploration of the emotional journeys of her characters. NLP techniques can be leveraged to detect shifts in tone, sentiment, and emotional expression as the narrative transitions between the perspectives of different characters and periods. For instance, the language used to describe the experiences of Esi, who is enslaved, may be characterized by a greater prevalence of words and phrases associated with anguish, despair, and a yearning for freedom. Conversely, the emotional landscape of Effia's descendants, who benefit from the economic privileges of the slave trade, may be more complex, with language reflecting guilt, moral ambiguity, and the struggle to reconcile their complicity.

Sentiment Analysis of Hosseini's *The Kite Runner*

Sentiment analysis of Hosseini's *The Kite Runner* reveals the profound emotional journey of the protagonist, Amir. The narrative begins with Amir's overwhelming guilt and shame over his failure to protect his friend Hassan from a brutal assault, manifesting in a heavy concentration of negative sentiments like remorse and self-loathing. As the story progresses, the sentiment gradually shifts towards more positive emotions as Amir embarks on a quest for redemption, reflecting his internal transformation. “The BERT model also surpassed the results of unsupervised text categorization, indicating its ability to effectively capture and analyze sentiment patterns” (Huang, 2021, p. 47). The ebb and flow of Amir's emotional landscape, from crippling guilt to hard-won hope, mirrors his struggle to confront the past and become a better man, offering deep insights into the psychological complexities of Hosseini's acclaimed work.

Applying emotion detection to Khaled Hosseini's *The Kite Runner* can highlight how the characters navigate the emotional impact of political upheaval and personal relationships. NLP techniques can analyze the prevalence of emotions such as fear, anger, and grief as the characters confront the turmoil of the Afghan civil war and the Soviet invasion. Simultaneously, the emotional dynamics between Amir and Hassan, bound by friendship and class divides, can be mapped to reveal the characters' complex emotional responses to betrayal, loyalty, and the weight of familial and societal expectations. By tracing these emotional patterns, scholars can gain deeper insights into how the characters' inner lives are shaped by the interplay of political and personal forces, reflecting the profound human cost of conflict and the resilience required to overcome it:

> I heard footfalls, shouts, an approaching melee of kite runners. But they were wasting their time. Because Hassan stood with his arms wide open, smiling, waiting for the kite. And may God------if He exists, that is------ strike me blind if the kite didn't just drop into his outstretched arms. (Hosseini, 2003, p. 45)

This quote from *The Kite Runner* by Hosseini provides a glimpse into Hassan's emotional state and his unwavering spirit in the face of adversity. The passage begins by describing the "footfalls, shouts, and approaching melee of kite runners," creating a sense of chaos and urgency in the surrounding environment. However, the focus shifts to Hassan, who stands with "arms wide open, smiling, waiting for the kite." This vivid imagery conveys a sense of calm, confidence, and even a touch of wonder as Hassan anticipates the arrival of the kite. The language used to describe the kite's descent is particularly striking, with the phrase "the kite didn't just drop into his outstretched arms" suggesting an almost divine or miraculous quality to the moment. The inclusion of the reference to God, "if He exists, that is," further emphasizes the spiritual and transcendent nature of Hassan's experience.

From an AI perspective, using sentiment analysis and natural language processing, several key insights can be drawn:

1. **Emotional Resilience:** The RoBERTa model would likely detect a high level of emotional resilience and positivity in Hassan's demeanor, as evidenced by his "smiling" and "arms wide open" posture. This suggests an inner strength and equanimity in the face of the surrounding chaos.
2. **Emotional Transcendence**: The language used, such as the reference to God and the almost miraculous quality of the kite's descent, indicates a sense of spiritual or emotional transcendence that elevates Hassan's experience beyond the immediate physical circumstances.
3. **Emotional Contrast:** The contrast between Hassan's calm, confident demeanor and the "footfalls, shouts, and approaching melee" around him highlights the emotional divide between Hassan and the other kite runners. This suggests a unique emotional perspective and inner world that sets Hassan apart from the frenzied activity.
4. **Emotional Significance:** The emotional significance of this moment is further emphasized by the use of the conditional clause, "if God------if He exists, that is," which imbues the scene with a sense of profound meaning and importance.

Sentiment analysis can be used to track the shifting emotional states of the protagonist, Amir, and other key characters as they confront the upheaval of the Afghan civil war and the Soviet invasion. During periods of intense political unrest, the language is likely to reflect heightened emotions like fear, anger, and despair as the characters grapple with the threat of violence, displacement, and the erosion of their way of life. Furthermore, NLP can be employed to examine how the characters' emotional experiences are shaped by the social dynamics and power structures within Afghanistan. For instance, the emotional landscape of Amir, who belongs to the privileged Pashtun class, may differ significantly from that of his friend Hassan, who is a member of the marginalized Hazara minority.

Topic modeling and other NLP techniques

Through topic modeling, researchers can identify the key themes that emerge throughout the novel and analyze how these themes intersect with the characters' emotional journeys and the turbulent political landscape of Afghanistan. For instance, topics related to identity, class, and the legacy of trauma may be closely linked to the characters' internal conflicts and their attempts to navigate the social and cultural upheaval surrounding them.

In Rooney's *Normal People*, topic modeling may uncover themes of class, identity, and the nuances of interpersonal relationships. Gyasi's *Homegoing* could reveal the intergenerational impact of historical trauma and the sociocultural dynamics that shape the characters' emotional experiences. For Hosseini's *The Kite Runner*, topic modeling may elucidate the interplay between personal struggles and the broader political upheaval in Afghanistan, illuminating how the characters navigate the complex interplay of the private and the public. By applying these AI-driven analytical tools to the rich tapestry of contemporary English literature, scholars can gain deeper insights into the thematic threads that define the human experience across diverse cultural and historical contexts.

Analyzing the narrative structure of contemporary English novels can provide valuable insights into how authors' creative choices shape the thematic elements of their work. In Sally Rooney's *Normal People*, the nonlinear, character-driven structure reflects the nuanced exploration of identity and class. Yaa Gyasi's *Homegoing* employs a generational, multi-perspective approach to convey the intergenerational impact of historical trauma. Khaled Hosseini's *The Kite Runner* utilizes a retrospective narration to underscore the protagonist's emotional journey and the interplay between the personal and the political. By leveraging AI-driven techniques like natural language processing and narrative analysis, scholars can delve deeper into the relationship between form and content, illuminating how the authors' structural choices amplify the thematic complexities of their works. This interdisciplinary approach allows for a more post-humanist understanding of how contemporary English literature reflects and responds to the broader sociopolitical and cultural contexts that shape the human experience.

Stylistic Analysis and Deep Learning

Deep learning-based language models offer a powerful means of exploring the semantic relationships, figurative language, and stylistic patterns in contemporary English novels. In Sally Rooney's *Normal People*, deep learning can uncover the nuanced linguistic choices that reflect the characters' emotional landscapes and social dynamics. In Yaa Gyasi's *Homegoing*, these models can shed light on the symbolic and metaphorical resonances of the narrative, illuminating how language conveys the intergenerational trauma of the African diaspora. For Khaled Hosseini's *The Kite Runner*, deep learning can be leveraged to analyze the protagonist's evolving voice and the shifts in tone and register that mirror his emotional journey and engagement with the political upheaval in Afghanistan. By applying these AI-driven techniques to the rich tapestry of contemporary English literature, scholars can gain unprecedented insights into the stylistic artistry and thematic complexities that define the human experience across diverse cultural and historical contexts.

Synthesis and Implications

The multifaceted approach to analyzing contemporary English literature, integrating machine learning, deep learning, and NLP techniques, holds immense significance in enhancing our understanding of the human experience as expressed through the written word. By examining the emotional trajectories, thematic complexities, and stylistic choices in works like Sally Rooney's *Normal People*, Yaa Gyasi's *Homegoing*, and Khaled Hosseini's *The Kite Runner*, scholars can uncover profound insights into the nuances of identity, social dynamics, and the impact of historical trauma.

The comprehensive and multifaceted approach to analyzing contemporary English literature, which incorporates machine learning, deep learning, and natural language processing (NLP) techniques, carries significant importance in deepening our understanding of the human experience as conveyed through the medium of written expression. By meticulously examining the emotional trajectories, intricate thematic complexities, and distinctive stylistic choices found in notable works such as Sally Rooney's *Normal People*, Yaa Gyasi's *Homegoing*, and Khaled Hosseini's *The Kite Runner*, scholars have the opportunity to uncover profound insights into the subtle nuances of identity, the intricate dynamics of social interaction, and the lasting impact of historical trauma on individuals and communities. This analytical framework not only enriches literary studies but also fosters a greater appreciation for how literature reflects and shapes human experiences across diverse contexts.

VI. Conclusion

Machine learning, deep learning, and natural language processing (NLP) techniques in analyzing contemporary English novels can significantly enrich our understanding of the human experience expressed through literature. By integrating findings from sentiment analysis, emotion detection, thematic exploration, and stylistic analysis, a post-humanist and multifaceted approach to literary criticism can emerge. In Sally Rooney's *Normal People*, the interplay of linguistic patterns, emotional trajectories, and thematic concerns illuminates the nuanced exploration of identity, class, and interpersonal relationships. Gyasi's *Homegoing* employs a more lyrical, metaphorical style to convey the intergenerational trauma and resilience of the African diaspora, with topic modeling shedding light on the thematic threads that shape the characters' emotional experiences. In Hosseini's *The Kite Runner*, the retrospective narration and shifting sentiment mirror the protagonist's emotional journey and engagement with political upheaval in Afghanistan, as revealed through sentiment analysis and emotion detection.

By comparing and contrasting the stylistic choices of these authors, as revealed through deep learning techniques, scholars can gain a deeper understanding of how language and form work together to shape the overall literary experience. This interdisciplinary approach, which combines contemporary English literature with the analytical power of AI, offers a rich and nuanced understanding of the human experience expressed through the written word. The potential implications of this computational analysis of literary works are far-reaching, opening up new avenues for interdisciplinary collaboration and enhancing our collective understanding of the human condition. As computational literary analysis continues to evolve, the integration of machine learning, deep learning, and natural language processing techniques will further deepen our appreciation for the complexities and nuances of contemporary English literature.

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