

A Linguistic Analysis of Lexical and Structural Ambiguity in Christopher Nolan's *Oppenheimer*

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ARTICLE INFO

Article history:

Received : February 12, 2026

Reviewed : June 25, 2026

Revised : June 26, 2026

Accepted : July 9, 2026

Available online : July 14, 2026

Keywords:

Linguistics, Semantics,
Lexical, Structural,
Ambiguity

Abstract

This study aims to analyze how *Oppenheimer* employs ambiguity as a storytelling device to enrich the narrative and encourage audiences to critically interpret the ideas and messages conveyed in the film. A descriptive qualitative method was employed to examine lexical and structural ambiguities found in the dialogues spoken by the main character, J. Robert Oppenheimer, portrayed by Cillian Murphy. The findings reveal a total of 24 ambiguous dialogues, consisting of 17 instances of lexical ambiguity and 7 instances of structural ambiguity. Lexical ambiguity occurs when a word has more than one possible meaning, potentially leading to different interpretations. Structural ambiguity arises from sentence structures that allow multiple interpretations due to their grammatical arrangement. These findings suggest that ambiguity plays a significant role in shaping the film's narrative by encouraging viewers to interpret the dialogues from different perspectives. Rather than creating confusion, the use of ambiguity enhances the complexity of the characters, supports the thematic depth of the story, and promotes critical engagement with the film's underlying messages.

INTRODUCTION

Language is the primary medium through which people communicate ideas, emotions, and knowledge. However, language is not always interpreted in a single, fixed way. Depending on lexical choices, grammatical structures, and contextual information, an utterance may convey multiple meanings, creating ambiguity. In linguistics, ambiguity is generally classified into lexical ambiguity, which occurs when a word has more than one meaning, and structural (or syntactic) ambiguity, which arises when a sentence can be interpreted through more than one grammatical structure (Kroeger, P. R. (2023)). Although ambiguity may create misunderstanding in everyday communication, it also serves important communicative and artistic functions, particularly in literary works and cinematic discourse.

Films represent a unique form of discourse because meaning is constructed through the interaction of language, visual images, sound, and context. Dialogue plays a central role in shaping

characters, advancing the plot, and conveying thematic messages. Consequently, ambiguity is frequently employed by scriptwriters to encourage multiple interpretations, portray psychological complexity, and engage audiences in deeper meaning-making Long, S. (2023). The interpretation of ambiguous dialogue therefore depends not only on the linguistic form itself but also on the narrative context in which it occurs.

According to (Hurford, et al. (2007). ambiguity is generally classified into lexical ambiguity and structural ambiguity. Lexical ambiguity occurs when a single lexical item has multiple meanings. This category includes polysemy, in which several related meanings are associated with one lexical item, and homonymy, in which identical word forms possess unrelated meanings. Structural ambiguity, by contrast, arises when a sentence or phrase can receive more than one interpretation because of its grammatical or syntactic structure.

According to Cruse, (2011) further explains that lexical meaning cannot be interpreted independently from its semantic relations and contextual use. Similarly, (Saeed, 2016) argues that contextual information plays a crucial role in selecting the intended meaning when multiple interpretations are possible. (Yule, 2020) also emphasizes that ambiguity is a natural characteristic of human language, and successful communication depends on listeners' ability to use linguistic and situational context to determine speakers' intended meanings.

Based on these theoretical perspectives, the present study adopts (Hurford, et al (2007) classification of lexical and structural ambiguity as the principal analytical framework. Lexical ambiguity is analyzed through the categories of homonymy and polysemy, whereas structural ambiguity is identified through syntactic constructions that permit multiple interpretations. Contextual analysis is subsequently employed following the semantic principles proposed by (Cruse, 2011), (Saeed, 2016), and (Yule, 2020) to determine the intended meaning of each dialogue.

Previous studies have extensively examined ambiguity from semantic and syntactic perspectives. Puspitasari, J., & Bretha, N. (2019). investigated lexical and structural ambiguity in newspaper articles and found that ambiguous expressions commonly arise from polysemy, homonymy, and syntactic structure. Similarly, (Juliana, et al. (2022). analyzed ambiguity in Facebook celebrity posts and demonstrated that lexical and grammatical ambiguity frequently influences readers' interpretations in online communication. (Demir, C. (2020). further examined lexical and structural ambiguities in students' academic writing, concluding that inappropriate lexical choices and sentence structures often reduce clarity and create multiple interpretations. This study is grounded in semantic theories of ambiguity proposed by (Hurford, J. R., et al. (2007), (Cruse, 2011), (Saeed, 2016), and (Yule, 2020). These scholars define ambiguity as a linguistic phenomenon in which a word, phrase, or sentence allows two or more possible interpretations.

Studies on ambiguity have also been conducted in audiovisual discourse and film dialogue. These studies generally argue that ambiguity contributes to characterization, narrative development, and audience engagement by allowing multiple interpretations of spoken utterances. However, most previous research has concentrated on identifying ambiguous expressions in literary texts, newspapers, social media discourse, or general communication, while relatively few studies have focused specifically on semantic ambiguity in contemporary historical films. Moreover, many existing studies merely classify ambiguous expressions without providing detailed contextual explanations of how meaning is resolved within cinematic discourse.

The film *Oppenheimer* directed by Christopher Nolan, presents an appropriate object for investigating ambiguity because its dialogue combines scientific terminology, historical references, philosophical reflection, and interpersonal communication. These characteristics create numerous opportunities for lexical and structural ambiguity, requiring viewers to interpret utterances based on linguistic and situational context. Since the film portrays complex scientific and political events through sophisticated dialogue, it provides valuable data for semantic analysis.

Although previous studies have investigated ambiguity in newspapers, social media, student writing, and general discourse, limited research has examined how lexical and structural ambiguity function simultaneously in the dialogue of a contemporary historical film such as *Oppenheimer*. Furthermore, existing studies primarily focus on identifying ambiguity types, whereas relatively little attention has been given to explaining how contextual information resolves ambiguous meanings in cinematic dialogue.

This study contributes to the existing literature by providing a contextual semantic analysis of both lexical and structural ambiguity in the dialogues spoken by J. Robert Oppenheimer, the film's main character. Rather than merely classifying ambiguous expressions, this research explains how contextual information determines the intended meaning of each utterance within the narrative. Consequently, the study extends previous ambiguity research from written discourse to audiovisual discourse and demonstrates how semantic ambiguity operates within a historically and scientifically oriented film.

Accordingly, this study aims to identify the types of lexical and structural ambiguity found in the dialogues spoken by J. Robert Oppenheimer and to explain how contextual factors determine the intended meaning of ambiguous expressions. The findings are expected to contribute to semantic studies, discourse analysis, and film language research by providing a clearer understanding of ambiguity in cinematic communication.

METHOD

This research employed a descriptive qualitative design because the objective was to identify, classify, and interpret lexical and structural ambiguities occurring in naturally occurring film dialogue rather than to test hypotheses statistically. Qualitative semantic analysis enables a detailed examination of how ambiguous expressions are interpreted within their linguistic and situational contexts.

Data Source

The primary data consisted of dialogues spoken by J. Robert Oppenheimer, portrayed by Cillian Murphy, in Christopher Nolan's *Oppenheimer* (2023). The official film was repeatedly viewed via a licensed streaming platform, and the dialogue transcript was compiled by comparing the film audio with publicly available screenplay materials to ensure accuracy.

Data Collection Procedures

The data collection was conducted through several systematic stages.

1. **Repeated viewing.** The researcher watched the entire film several times to understand the narrative context and identify potentially ambiguous utterances.
2. **Transcription.** All dialogues spoken by J. Robert Oppenheimer were transcribed verbatim. Each dialogue was subsequently compared with available screenplay sources to minimize transcription errors.
3. **Selection of data.** Only utterances satisfying at least one of the following criteria were selected:
 - containing lexical ambiguity resulting from homonymy or polysemy;
 - containing structural ambiguity arising from syntactic construction;
 - allowing more than one semantic interpretation before contextual information was considered.

Coding Procedures

The coding process followed the ambiguity classification proposed by (Hurford, et al. (2007)).

Stage 1: Initial Coding

Each dialogue was examined to determine whether it represented lexical or structural ambiguity.

Stage 2: Category Coding

Lexical ambiguity was further classified into:

- Homonymy
- Polysemy

Structural ambiguity was categorized based on syntactic structures that permit multiple interpretations.

Stage 3: Contextual Interpretation

Each coded dialogue was interpreted by considering the immediate conversational context, narrative situation, speaker intention, and semantic relations following (Cruse, 2011), (Saeed, 2016), and (Yule, 2020).

Data Analysis

Data analysis followed the interactive qualitative analysis model proposed by (Miles, M. B., Huberman, A. M., & Saldaña, 2014), consisting of:

1. Data condensation;
2. Data display;
3. Drawing and verifying conclusions.

Each ambiguous dialogue was analyzed by identifying its possible meanings, determining the intended interpretation through contextual analysis, and explaining the semantic factors responsible for the ambiguity.

Reliability and Validity

To enhance the trustworthiness of the findings, several validation procedures were implemented.

Coding Consistency

The researcher developed a coding guide based on Hurford, et al. (2007). semantic classification before analyzing the data. The coding scheme was applied consistently throughout the analysis, and previously coded data were revisited after the initial coding process to ensure consistency across all identified cases.

Expert Validation

The coding categories and semantic interpretations were reviewed by a linguistics lecturer with expertise in semantics. Suggestions regarding the classification of ambiguous expressions and contextual interpretations were incorporated before the final analysis.

Inter-rater Agreement

A second researcher independently reviewed the classification of a representative sample of the coded dialogues using the same coding framework. Any differences in classification were discussed until consensus was reached. This peer-review process increased the credibility and dependability of the analysis.

Analytical Trustworthiness

The credibility of the findings was strengthened through repeated viewing of the film, careful comparison of transcripts with the original dialogue, contextual interpretation of every ambiguous expression, expert review, and systematic coding procedures. These strategies helped ensure that the identified ambiguities accurately reflected the semantic characteristics of the film dialogue rather than subjective researcher interpretation.

FINDINGS

Interpretation of the Distribution of Ambiguity Types

The analysis identified **24 instances of ambiguity**, comprising **17 lexical ambiguities (70.8%)** and **7 structural ambiguities (29.2%)**. The predominance of lexical ambiguity indicates that the dialogue in *Oppenheimer* relies more heavily on words with multiple semantic interpretations than on syntactic constructions that generate structural ambiguity. This distribution suggests that Christopher Nolan's screenplay tends to exploit the semantic richness of individual lexical items to convey layered meanings while maintaining relatively straightforward grammatical structures.

Lexical ambiguity occurs more frequently because many of the film's dialogues involve scientific terminology, philosophical reflection, and political discourse. Words such as *run*, *engaged*, *see*, *death*, and *board* possess multiple conventional meanings in English. According to (Hurford, et al. (2007) lexical ambiguity naturally arises when a lexical item has more than one possible interpretation through homonymy or polysemy. In cinematic dialogue, scriptwriters often utilize these semantic properties to produce utterances that are meaningful on both literal and figurative levels. Consequently, viewers interpret these expressions by integrating linguistic meaning with the surrounding narrative context.

By contrast, structural ambiguity appears less frequently because film dialogue generally prioritizes clarity and conversational naturalness. As noted by (Saeed, 2016) structural ambiguity results from syntactic configurations that permit more than one grammatical interpretation. Excessive use of structurally ambiguous sentences could interfere with audience comprehension and disrupt the flow of narrative communication. Therefore, the relatively limited number of structurally ambiguous utterances in *Oppenheimer* is consistent with the communicative demands of cinematic storytelling, where dialogue must remain understandable while supporting the progression of the narrative.

The predominance of lexical ambiguity may also reflect Christopher Nolan's writing style. Nolan's films are widely recognized for intellectually demanding narratives, complex characterization, and dialogue that encourages audiences to interpret meaning beyond the literal level. Rather than relying on grammatically ambiguous sentence structures, Nolan frequently employs words whose meanings develop according to narrative context, scientific discourse, or philosophical reflection. This stylistic tendency enables dialogue to remain grammatically accessible while simultaneously conveying multiple conceptual interpretations.

Furthermore, ambiguity contributes significantly to characterization. Throughout the film, J. Robert Oppenheimer is portrayed as a scientist confronting ethical dilemmas, political pressures, and personal conflicts. The frequent use of lexically ambiguous expressions mirrors the complexity of his intellectual and emotional state. Many utterances acquire deeper significance only after viewers consider the broader historical, interpersonal, or scientific context in which they are spoken. Consequently, ambiguity functions not merely as a linguistic phenomenon but also as a narrative strategy for representing the protagonist's internal conflicts and evolving perspective.

Ambiguity also supports narrative development. Several ambiguous expressions initially appear to have ordinary meanings but acquire additional interpretations as the story progresses. This delayed clarification encourages viewers to reconsider earlier dialogues in light of subsequent events, thereby strengthening thematic coherence throughout the film. In this respect, ambiguity serves an interpretative rather than decorative function: it invites audiences to actively construct meaning by connecting linguistic expressions with narrative context.

The findings are consistent with previous studies indicating that lexical ambiguity occurs more frequently than structural ambiguity in authentic discourse (Demir, C. (2020), Juliana, et al (2022). (Puspitasari, J., & Bretha, N. (2019). However, unlike previous research that primarily

classified ambiguity types, the present study demonstrates how lexical and structural ambiguities function within cinematic discourse and how contextual information resolves potential multiple interpretations. This contextual perspective extends previous semantic studies by showing that ambiguity in film dialogue is closely related to characterization, thematic development, and narrative coherence rather than functioning solely as an isolated linguistic feature.

DISCUSSION

The present study identified 24 instances of ambiguity in the dialogues spoken by J. Robert Oppenheimer, consisting of 17 lexical ambiguities and 7 structural ambiguities. The predominance of lexical ambiguity indicates that semantic ambiguity is more frequently realized through words with multiple meanings than through syntactic structures in the selected film dialogue. This finding suggests that the screenplay primarily exploits lexical choices to create interpretative depth while maintaining relatively clear sentence structures.

This finding is consistent with previous studies reporting that lexical ambiguity occurs more frequently than structural ambiguity in authentic discourse. (Puspitasari, J., & Bretha, N. (2019), for example, found that lexical ambiguity dominated newspaper discourse because polysemous and homonymous words naturally possess multiple meanings that are resolved through context. Similarly, Demir, C. (2020). demonstrated that lexical ambiguity appeared more frequently than structural ambiguity in students' academic writing, largely because lexical items are inherently more susceptible to multiple semantic interpretations than grammatical constructions. The current findings support these studies by showing that the predominance of lexical ambiguity also characterizes cinematic dialogue.

The findings also extend previous research on ambiguity in digital communication. Juliana, et al. (2022). reported that ambiguity in celebrity Facebook posts frequently emerged from lexical choices, particularly words whose meanings depended on contextual interpretation. While their study focused on online written discourse, the present research demonstrates that similar semantic mechanisms operate in audiovisual communication. In both contexts, contextual information is essential for determining the intended interpretation of ambiguous expressions, supporting the semantic principles proposed by (Saeed, 2016) and (Cruse, 2011)

Unlike previous studies that mainly classified ambiguity into lexical and structural categories, the present research examines how ambiguity functions within a historical film narrative. The analysis reveals that ambiguous expressions are closely integrated with characterization and narrative development rather than functioning as isolated linguistic phenomena. Many ambiguous utterances spoken by J. Robert Oppenheimer acquire their full meaning only when interpreted in relation to scientific concepts, political circumstances, interpersonal relationships, and historical events presented throughout the film. This finding supports (Yule, 2020) argument that contextual knowledge is indispensable for resolving ambiguity in natural language communication.

The predominance of lexical ambiguity may also reflect the stylistic characteristics of Christopher Nolan's screenplay. Nolan's films are widely recognized for intellectually complex narratives and dialogue that invites audiences to construct meaning actively rather than relying solely on explicit explanation. In *Oppenheimer*, this tendency is realized primarily through semantically rich lexical items instead of highly ambiguous syntactic constructions. The dialogue therefore remains grammatically accessible while simultaneously encouraging multiple levels of interpretation through contextualized word meanings. Although this observation is consistent with the linguistic characteristics identified in the present data, it should be interpreted as a characteristic of the analyzed screenplay rather than as a definitive feature of Nolan's entire body of work.

The relatively limited occurrence of structural ambiguity also deserves attention. According to Hurford, et al., (2007). structural ambiguity arises from alternative grammatical analyses of the

same sentence. Such constructions are comparatively uncommon in the present corpus because cinematic dialogue generally prioritizes communicative clarity. Excessive structural ambiguity could impede audience comprehension and interfere with narrative progression, particularly in a film that presents complex scientific and political issues. Consequently, the lower frequency of structural ambiguity appears compatible with the communicative requirements of film dialogue.

Another important contribution of this study concerns the relationship between ambiguity and characterization. The findings indicate that ambiguous lexical choices frequently accompany moments in which Oppenheimer reflects on scientific responsibility, ethical conflict, and political pressure. Rather than serving merely as linguistic ornamentation, ambiguity becomes a narrative device through which the protagonist's intellectual complexity and psychological uncertainty are represented. This observation extends previous ambiguity studies by demonstrating that semantic ambiguity contributes not only to meaning construction but also to characterization in cinematic discourse.

Furthermore, the findings contribute to research on film language by illustrating how semantic ambiguity functions within audiovisual storytelling. Previous investigations have largely examined ambiguity in newspapers, social media, advertisements, or academic writing, whereas relatively little attention has been given to ambiguity in contemporary historical films. By analyzing ambiguity in *Oppenheimer*, this study expands the application of semantic theory to cinematic discourse and demonstrates that ambiguity serves communicative, interpretative, and narrative functions simultaneously.

Overall, the present study both supports and extends previous research. It supports earlier findings that lexical ambiguity is generally more frequent than structural ambiguity and that contextual information is essential for resolving multiple meanings. At the same time, it extends existing literature by demonstrating how ambiguity operates within historical film dialogue to develop characterization, reinforce thematic complexity, and guide audience interpretation. These findings highlight the value of combining semantic theory with discourse analysis to understand the communicative functions of ambiguity in contemporary cinema.

CONCLUSION

This study investigated lexical and structural ambiguity in the dialogues spoken by J. Robert Oppenheimer in Christopher Nolan's *Oppenheimer* by using a descriptive qualitative approach grounded in the semantic theories of (Hurford, et al. (2007), (Cruse, 2011), (Saeed, 2016), and (Yule, 2020). The analysis identified 24 instances of ambiguity, consisting of 17 lexical ambiguities and 7 structural ambiguities. Lexical ambiguity was predominantly realized through polysemy and homonymy, whereas structural ambiguity resulted from syntactic constructions that permitted more than one interpretation. The findings demonstrate that contextual information is essential for determining the intended meaning of ambiguous expressions and resolving potential multiple interpretations in cinematic dialogue.

The predominance of lexical ambiguity suggests that the screenplay relies more extensively on semantically rich lexical items than on structurally ambiguous sentence patterns. This tendency enables the dialogue to convey multiple layers of meaning while maintaining grammatical clarity, thereby supporting audience comprehension. The analysis further indicates that ambiguity contributes to characterization by reflecting the protagonist's intellectual complexity, ethical dilemmas, and psychological conflicts. In addition, ambiguity supports narrative development by encouraging audiences to interpret dialogue within its broader historical, scientific, and interpersonal contexts.

The findings support previous semantic studies that identify lexical ambiguity as more prevalent than structural ambiguity in natural discourse and confirm that contextual interpretation is fundamental to meaning construction. At the same time, this study extends earlier research by

demonstrating how ambiguity functions within cinematic discourse, particularly in a contemporary historical film. Rather than merely classifying ambiguous expressions, the study illustrates how semantic ambiguity contributes to characterization, thematic development, and audience interpretation, thereby broadening the application of semantic theory to audiovisual communication. Despite these contributions, the study has several limitations. The analysis focuses exclusively on the dialogues of the main character in a single film, limiting the generalizability of the findings to other characters, genres, or cinematic contexts. Furthermore, the research examines ambiguity from a semantic perspective without considering complementary pragmatic, multimodal, or discourse-analytic dimensions that may also influence meaning interpretation.

Future research is therefore encouraged to investigate ambiguity across multiple films, compare different film genres or directors, incorporate pragmatic and discourse-based approaches, and examine how visual and auditory elements interact with language to shape audience interpretation. Such studies would provide a more comprehensive understanding of ambiguity as a communicative and narrative resource in audiovisual discourse.

REFERENCES

- Cruse, D. A. (2011). *Meaning in Language: An Introduction to Semantics and Pragmatics* (3rd ed.). Oxford University Press.
- Demir, C. (2020). *Lexical and Structural Ambiguities in Student Writing: An Assessment and Evaluation of Results*. *African Educational Research Journal*, 8(3), 100–108. (n.d.).
- Hurford, J. R., Heasley, B., & Smith, M. B. (2007). *Semantics a Coursebook* (2nd ed.). Cambridge University Press. (n.d.).
- Juliana, J., Nadirah, N., Lababa, L., & Manda, I. (2022). *Investigating Lexical And Syntactic Ambiguity On Native Facebook Celebritism*. *English Language Journal*, 8(1), 40–47. (n.d.).
- Kroeger, P. R. (2023). *Analyzing meaning An introduction to semantics and pragmatics*. (S. Müller & A. Machicao, Eds.; 3rd ed.). Language Science Press.
<https://doi.org/10.5281/zenodo.6855854>. (n.d.).
- Long, S. (2023). *Communication Strategies of Film Language in Cross cultural Context*. *Clausius Scientific Press, Canada*, 4(13), 94–102. (n.d.).
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative Data Analysis: A Methods Sourcebook* (3rd ed.). Sage.
- Puspitasari, J., & Bretha, N. (2019). *Lexical and Structural Ambiguity Found in Articles in The Jakarta Post Daily Newspaper*. *Jurnal Humanis, Fakultas Ilmu Budaya Unud*, 23(1), 19–24. (n.d.).
- Saeed, J. I. (2016). *Semantics* (4th ed.). Wiley-Blackwell.
- Yule, G. (2020). *The Study of Language* (7th ed.). Cambridge University Press.