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Subtitling Sense of Humor Generated by Zeemo AI-Powered Tool from Arabic into English

Ala Bassam Mousa Kattos * , Ahmad Mohammad Al-Harabsheh 

Translation Department, Faculty of Arts, Yarmouk University, Irbid 21110, Jordan

ABSTRACT

This study assessed the subtitling of Egyptian humorous expressions into English provided by Zeemo's AI-powered subtitling tool. A total of 50 humorous expressions were selected from the Egyptian comedy film *Taj* and analyzed using a qualitative descriptive approach. The findings revealed that Zeemo's subtitling did not convey the sense of humor adequately in English, as the tool often left the humor unchanged, relied on literal translation, or used similar but ineffective expressions in the target language. The study concluded that while AI-powered subtitling tools such as Zeemo can facilitate the subtitling process, they remain limited in handling culture-bound humor. It was therefore recommended that human intervention be essential for editing and supervising automated subtitles to ensure accuracy, effectiveness, and audience comprehension. The study points to potential risks of audience misunderstanding or loss of humor when relying solely on automated subtitles, which can affect content reception and viewer satisfaction. The study adds to the limited body of work examining how AI tools handle humor in subtitling, specifically Egyptian Arabic humor, which is culturally rich and often challenging to translate. It provides empirical evidence of the shortcomings of AI subtitling in transmitting humor, offering insights for refining both translation theory and practice in the age of automation. It enriches translation studies by exploring the intersection between humor translation and AI subtitling, an area that remains relatively under-researched.

Keywords: Egyptian Arabic; Sense of Humour; Subtitling; Taj Movie; Zeemo

*CORRESPONDING AUTHOR:

Ala Bassam Mousa Kattos, Translation Department, Faculty of Arts, Yarmouk University, Irbid 21110, Jordan; Email: Alaaqattous5@icloud.com

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1. Introduction

Artificial intelligence (AI) has revolutionized various sectors, including translation technologies, with the potential to enhance communication across languages. However, one significant challenge remains in subtitling humor, which relies heavily on cultural and social contexts ^[1]. Humor, particularly in comedic films, requires a nuanced understanding of the cultural subtext and is often transient and context-dependent ^[2]. AI systems may overlook essential cultural references or fail to adapt jokes to suit the target audience; this may lead to misunderstandings or loss of the intended comedic effect ^[1].

AI refers to the replication of human intelligence processes through technology, particularly computer systems ^[3]. Audiovisual translation (AVT) encompasses various methods, such as subtitling, which transforms spoken dialogue and visual elements into a text that is displayed at the bottom of the screen. Díaz-Cintas and Remael ^[4] point out that subtitling aims to convey not only spoken words but also visual and audio information present in the media. Therefore, audiovisual materials must be accessible to people of all languages and cultures.

Chaume ^[5] highlights how AVT has evolved with new tools and audiences. AVT continually adapts to meet modern translation needs, incorporating new technologies to improve communication across diverse language and cultural settings. While AI advancements have made subtitling more efficient and accessible, subtitling humor remains a considerable challenge. Humor often relies on cultural and social contexts, which can be difficult for AI to comprehend and subtitle accurately. As a crucial aspect of human culture, humor demands an understanding of wordplay, sarcasm, and cultural ironies. Successfully conveying humor requires preserving the spirit of the original text to ensure the joke's essence is retained. Enhancing AI's ability to translate humor effectively is crucial for improving the accuracy of automated subtitling and fostering deeper connections between people from diverse cultures.

Despite rapid advancements in AI-driven translation technologies, subtitling humor remains a significant challenge. Humor often depends on complex cultural and social contexts, which AI struggles to fully understand and translate adequately, as it is closely tied to the cultural norms

of a specific speech community. This study addresses the critical need to assess AI's effectiveness in subtitling humor by examining its performance with the Egyptian comedy movie *Taj*.

In addition, this study evaluates the Egyptian comedy movie *Taj* to assess how effectively Zeemo AI-powered 8tool subtitles humor expressions in English. It specifically examines the performance of Zeemo in subtitling *Taj* into English, focusing on challenges, such as cultural nuances and linguistic differences. By analyzing several humorous examples from the movie and their AI-generated subtitling, the study aims to identify areas where AI struggles and underscore the ongoing importance of human translators in accurately conveying complex cultural content. The findings contribute to improving AI translation technologies. To achieve the aims of the study, this study attempts to answer the following questions:

1. What are the challenges faced by Zeemo AI-powered subtitling tool in translating the sense of humor of the *Taj Movie into English*?
2. What are the strategies used in Zeemo AI-powered subtitling tool for the *Taj* movie?

2. Literature Review

2.1. Sense of Humor

A sense of humor is the ability to recognize, enjoy, and express amusing situations, reflecting an individual's personality and background. Humor encompasses various types, such as verbal humor (clever language and wordplay), physical humor (funny actions and slapstick), and situational humor (unexpected or silly scenarios). Dark humor involves making jokes about serious topics, while self-deprecating humor entails joking about oneself. Satire and parody exaggerate societal norms for comedic effect ^[6-8].

Nash ^[9] viewed humor as a critical component of social play, emphasizing that its interpretation depends on context and ranges from quick wit to elaborate narratives. This aligns with the broader cultural and social factors that shape our comedic responses. Bruce ^[10] dissected humor into three components: wit (mental), mirth (emotional), and laughter (physical), highlighting its complexity and the challenges of systematic analysis.

Mikolčić ^[11] investigated the challenges and strategies involved in subtitling humor in audiovisual content. The study particularly highlighted the complexity of subtitling humor from English to Croatian, considering differences in semantics and grammatical structures. It examined how humor, a significant element in many television series, poses difficulties in translation due to linguistic, cultural, and technical constraints. The study was based on jokes from the first season of the popular TV show *Friends*, and aimed to explore the many problems translators face and the methods they use to preserve the humorous effectiveness across languages. The study analyzed the translation of six categories of jokes from the first season of the TV show *Friends* on HBO GO. The translators used different Chiaro's ^[12] strategies to deliver the translations. The translators used Chiaro's ^[12] translation strategies. The findings revealed that translators predominantly employed Chiaro's first and second strategies, with occasional use of the third and fourth strategies. These results underscore the intricate challenges of humor translation in audiovisual media.

Sandre ^[13] explored the effectiveness of translating British humor into Italian subtitles for three episodes of the British TV series *Peep Show*. The study investigated whether the humor in the original English dialogue can be preserved and conveyed in Italian, despite linguistic differences, cultural nuances, and subtitling constraints. Key aspects included an analysis of humor translation, a theoretical framework based on Raskin's ^[14] theories of humor and Pedersen's ^[15] model for subtitling extra-linguistic culture-bound references, and an examination of subtitling constraints such as spatial and temporal limitations. The research aimed to provide Italian subtitles for three episodes of *Peep Show* and assess the translation of the show's humor. The findings indicate that while humor translation is a challenging task, it is achievable. Pedersen's model facilitated the preservation of the show's humor without compromising its distinctly English character. However, linguistic and cultural challenges, as well as spatial and temporal constraints, influenced the translation process. The study contributes to understanding the difficulties translators face in subtitling humor and expands academic knowledge on humor translation and translation studies.

2.2. Automated Subtitling

Automatic Speech Recognition (ASR) subtitles are automatically generated by software that converts spoken audio into written text using complex algorithms and machine learning, recognizing and transcribing speech in real-time or post-processing ^[16]. Akasheh et al. ^[16] investigated the effectiveness and challenges of automatic speech recognition (ASR) technology in generating subtitles for Jordanian Arabic. ASR, which converts spoken language into written text, is increasingly important for accessibility and communication in AVT. The study focused on two main objectives: identifying common errors in ASR-generated subtitles for Jordanian Arabic and evaluating the word error rate (WER) to assess subtitle accuracy. The research evaluated the linguistic precision of *veed.io* in automatically generating intralingual subtitles for a Jordanian Arabic video. Errors are categorized into deletions, substitutions, and insertions. Deletions included issues with affixes, interjections, overlapping, and vowel length; substitutions involved nouns, verbs, function words, and foreign terms; and insertions included affixes, interjections, overlapping, and pronouns. The study found deletions (68%) to be the most prevalent errors, followed by substitutions (29%) and insertions (3%). The methodology categorized AI-powered subtitles into intralingual and interlingual types, based on the applied technology and the target language. The study recommended further research into ASR systems, particularly concerning the unique orthographic rules and writing system of the Arabic language. These findings contributed to advancements in language technology and improvements in auto-generated subtitles for Jordanian Arabic.

Qadi ^[17] examines the problems and possible solutions of English-Arabic automated subtitling on YouTube using an HMT tool. The study aims to identify the main problems of this technology and propose possible solutions. The study uses a comparative model within a descriptive framework to assess the products of the HMT tool and formulate possible solutions. Samples of different genres of YouTube videos were chosen, and their Arabic subtitles were analysed and evaluated. The concept of equivalence at the word level is used to detect problematic areas, focusing on the use of HMT tools in the information age.

Recent developments in neural machine translation, particularly speech translation, are advancing into audio-

visual translation (AVT). The rise of fully automatic subtitling, which includes machine translation, auto-spotting, and automatic segmentation, makes MT-oriented experimental designs inadequate for evaluating and investigating automatic subtitling. This study highlights the methodological gaps that need to be addressed by multidisciplinary efforts to obtain metrics and methods for rigorous experimental research in automatic subtitling. It reviews previous experimental designs in MT for subtitling, identifies their limitations, and proposes recommendations for achieving replicability and reproducibility in experimental research at the crossroads between AVT and MT ^[18].

Varga ^[19] aims to provide a deeper understanding of the automatic subtitling tools that are currently being used and of their context of application. Based on the assumption that AVT, in general, and subtitling, in particular, are undergoing fundamental changes, it is our aim to analyse the range of tools that allow AVT translators to enhance their productivity and efficiency. For this purpose, we have analysed 40 different automatic subtitling tools, currently available and accessible on the Internet. Through this analysis, it has been possible to observe the main features of these tools and their functioning. Therefore, different criteria have been established in order to systemize this extensive inventory, based on which 23 categories of software dedicated to automatic subtitling have been identified. These categories have been illustrated with examples. In this study, the aim is to provide a more accurate and more systematic understanding of automated subtitling programs. The study addressed AVT professionals as well as teachers and students having an interest in the state-of-the-art of automated subtitling. Verga explores the use of automatic subtitling tools and their application in translation (AVT). The study analysed 40 available tools and their functions, identifying 23 categories of software for automatic subtitling. The analysis helps AVT professionals, teachers, and students understand the state-of-the-art of automated subtitling. The goal is to provide a more accurate and systematic understanding of these programs. The study is aimed at AVT professionals, teachers, and students interested in the state-of-the-art of automated subtitling. The main features of these tools are observed, and their functioning is analysed. The study aimed to provide a more accurate and systematic understanding of automated subtitling programs ^[13].

Although Varga ^[20] examines the features and limitations of online automatic subtitling platforms, which enhance professional subtitler productivity through video-to-text transcription programs, machine translation programs, and text segmenters. With limited studies on these platforms, the study aimed to provide comprehensive empirical data and contribute to a better understanding of these innovative systems, as there are few existing studies on these platforms.

The eTITLE Translation Service, a European eContent project, offers a multilingual translation service for audiovisual material. It combines advanced machine translation and translation memories, allowing users to choose between Machine Translation, a specific Translation Memory, or an integration of both. The default option is an integration of both approaches, which ensures the original sentence is machine-translated if no translation exceeds a certain threshold. Oliver et al. ^[21] developed in the framework of the eTITLE project language pairs such as English-Spanish, Spanish-English, English-Czech, Catalan-Spanish, Spanish-Catalan, English-Catalan, and Catalan-English.

Face-to-face translation classes often lack tools and content to prepare future translators for a digitalized world. Technology is a valuable resource for translation learning and research, and a more extensive use of IT can enhance students' translation competence. This study proposes bringing audiovisual translation and subtitling software into the classroom to raise students' awareness of concrete translational problems. A study at the University of Padua used the freeware subtitling simulator LvS 2.5.2 and Translog 2006, with examples of activities designed and implemented in class. This study focuses on three interlingual subtitling activities from English to Italian. The study aims to explore the potential of these tools in enhancing students' translation competence ^[22].

According to Margherita Dore ^[23], scholars have often debated the issues related to the translation of humor, often holding opposing views. She claims: "If academics choose to adopt a pragmatic approach to studying humor translation, they will then have to consider which theoretical and practical issues this process poses and which possible solutions may be applied to overcome the challenges translators face (be they professional or amateur) when dealing with

a wide range of texts and situations, as well as which tools and strategies are at their disposal to allow them to complete their task” [23].

2.3. Arab Humor

Modern Standard Arabic (MSA) is the official language of the 22 countries that make up the Arab world, with around 300 million speakers. It is used in writing in addition to formal oral interactions such as lectures, public speeches, sermons, and news broadcasting. MSA is not the mother tongue of any speaker but is only taught at school. MSA is always grammatically consistent and is used as a lingua franca between Arabic-speaking populations to make communication easier [24].

Colloquial Arabic (CA) is the set of spoken varieties that exist in the form of regional dialects [25]. These dialects differ from MSA and from each other in pronunciation, vocabulary, and grammar. CA is spoken at home and between friends in everyday interactions. It is also used in informal written communications, such as text messages, personal letters, and emails [26].

Because of the restricted domains of MSA being mainly used in formal settings, movies and series use CA in most of their genres, such as comedy, action, and drama. It is just not normal to have the characters speak in MSA, especially since the scenarios usually revolve around daily issues. In other genres, such as historical or documentary films, MSA does not sound odd because they are instructive in nature, and people are aware of historical events from history books that are already written in MSA.

Comedy films, and particularly Egyptian ones, have wide audiences not only in Egypt itself but also in other parts of the Arab world. Egyptians are known as “awlād al-nukta, Sons of the Jokes” [27], and this made their dialect perfectly suitable for humorous purposes in movies. Therefore, translating Egyptian dialect in comedy movies into another language or dialect may not have the same impact on the audience. It may strip the work of many artistic qualities and leave much to be desired. According to Von Stackelberg [28], the translation must ensure that comical writing remains comical writing in translation, just as a tragic text must remain tragic. Therefore, although conveying the meaning is the core of translation, it is preferable to keep the style adopted in the source text as well.

The Arab Middle East provides a rich setting for studying humor, reflecting both cultural and social traditions. Classical Arabic literature contains numerous examples of humor, and people from countries such as Egypt, Jordan, Lebanon, and Morocco are known for their comedic heritage and the contributions of their scholars and literary communities to humor research. Although some work has addressed humor among Arabs in Israel, scholarly studies on Lebanese humor are still limited. Lebanon’s history of religious coexistence and its mix of Eastern and Western influences make it an ideal context for examining the social roles and diverse expressions of humor, often captured under the Arabic term *fukaha* [29].

3. Methods

3.1. Data Sources

The case study for this research is the film *Taj*, an Egyptian comedy released on the American YouTube platform on December 28, 2023. The events of the movie “Taj” revolve around a fantasy comedy framework, about *Taj* (Tamer Hosny) who works at a private school after leaving an orphanage, and there he meets Tamara and a great love story develops between them, and during that time he discovers that he has a supernatural power, super speed and the ability to become invisible. He tries to use it to help people and stand by them, but he is surprised that he has a twin brother named “Haroun”. This revelation leads to intense rivalry and conflict between the two siblings, as they find themselves on opposite sides—Taj fighting for good while Haroun pursues his own selfish interests. The film has a runtime of 120 minutes.

3.2. Data Collection Techniques

The data for this study were derived from the translation of *Tag* using the Zeemo tool. The whole movie was uploaded on Zeemo AI-powered subtitling tool (the paid version). After that, the study extracted 50 examples of Egyptian humor expressions from the video along with their English subtitles generated by Zeemo. Zeemo is a generative AI tool for adding subtitles to videos and captions. It provides free services for 10 minutes, while there is a subscription for movies that are more than 10 minutes.

3.3. Data Analysis

The entire movie was uploaded to the Zeemo platform, and a request was made to add Arabic subtitles. To analyze the humor in the film, fifty specific humor examples were chosen, each with its English subtitles. These examples were organized into two columns: one for the Source Translation (ST) and another for the Target Translation (TT). To evaluate how well the humor translated, Chiaro's ^[12] model of humor was used to analyze the data of the study. This approach helps to know the humor's type, understand how effectively the jokes and comedic elements were adapted from English to Arabic, and highlight the challenges of translating humor across different cultures. The analysis of the study was mainly based on Chiaro's ^[12] classification of humor in audiovisual content:

- a. Leaving the humor unchanged: Retaining the original humor in its original form in the target language.
- b. Replacing the humor with another instance: Substituting the original joke with a different one that suits the target culture.
- c. Using an idiomatic expression: Adapting the humor with a comparable idiomatic expression in the target language.
- d. Ignoring the humor: Omitting the humor entirely if it cannot be effectively translated.

3.4. Research Design

This study adopts a qualitative research design that relies on a descriptive and analytical approach in order to investigate the subtitling strategies used in rendering humor from Arabic into English. A case study method is applied, focusing on the Egyptian comedy film *Taj* (2023) as a single unit of analysis, which allows for a detailed exploration of the linguistic and cultural challenges of subtitling humor. The subtitled version of the film serves as the primary data, from which humorous dialogues and scenes are identified and examined. A comparative analysis is then conducted between the Arabic source dialogues and their English subtitles, drawing on established frameworks of audiovisual translation (AVT) and humor translation strategies such as literal translation, adaptation, omission, and explication. The subtitling strategies are further evaluated in terms of

their effectiveness in conveying humor, preserving meaning, and facilitating audience comprehension. This research design is particularly suitable because it emphasizes contextual and interpretive analysis rather than statistical generalization, thereby enabling a deeper understanding of subtitling accuracy, creativity, and cultural transfer.

4. Findings and Discussion

A total of fifty examples were analyzed to evaluate the performance of the Zeemo AI-powered subtitling tool in conveying humor from Egyptian Arabic into English. The analysis focused on four main subtitling strategies: leaving the humor unchanged, replacing the humor with another instance, using an idiomatic expression, and ignoring the humor altogether. Scenes were selected from the YouTube version of *Taj*, which covers approximately one hour and forty-five minutes of the film. The findings revealed that the tool most frequently relied on leaving the humor unchanged or using literal equivalents, while the use of idiomatic expressions or humor replacement was less common. In some cases, humorous content was ignored entirely, highlighting the limitations of automated subtitling in capturing culturally and linguistically nuanced humor. These results emphasize the need for human intervention to ensure that humor is accurately conveyed and culturally adapted in the target subtitles.

4.1. Findings

4.1.1. Leaving the Humor Unchanged

In this case, Zeemo provides a literal or word-for-word translation of the expression, and this leads to the loss of humor in translation.

In **Figure 1**, the head of the anti-superpower organization is speaking to *Taj*, telling him that he also has superhuman abilities and can control his wife with his words. The humor in this line comes from the irony of the statement. While the character says he can control his wife, the audience knows that, in reality, women, especially in Egyptian culture, are portrayed as strong, independent, and not easily controlled by anyone. The joke plays on the contrast between the man's belief that he can "control" his wife and the reality that women are often much more powerful and capable of handling situations on their own.

Example (1)

Source Translation by Zeemo (Arabic)	Target Translation by Zeemo (English)	Notes
انت تعرف ان انا اقدر امشي كلامي على مراتي (Irony intonation)	You know that I can walk my words on my wife.	Zeemo provides a literal translation for the whole utterance, but it also offers a word-for-word translation for the expression.

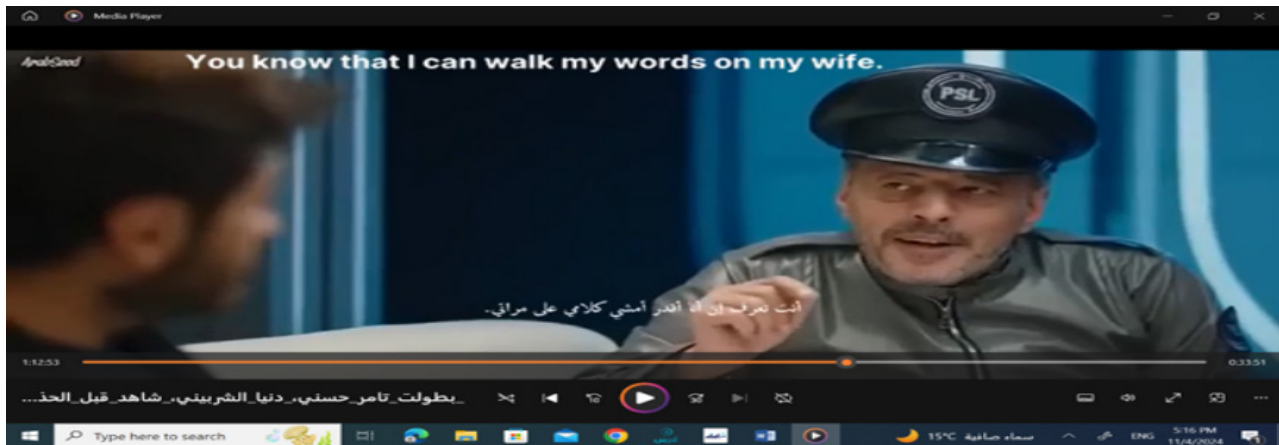


Figure 1. Leaving the Humor Unchanged (1).

Zeemo provides a literal translation for the whole utterance, but it also offers a word-for-word translation for the expression “انت تعرف ان انا اقدر امشي كلامي على مراتي” as “You know that I can walk my words on my wife.” However, it should be translated as: “You know I can control my wife with my words.” By adding emoji. This translation better captures the intended meaning and the humor behind the phrase.

The humor arises from the irony of a man claiming that he can “control his wife” with his words. In many cultures, especially in Egypt, traditional gender roles might suggest that men are dominant in marriage, yet the reality is often quite different. Women are typically strong, independent, and not easily “controlled.” The joke works by exaggerating this outdated belief, creating a humorous contrast between the man’s boast and the reality that women, in this

context, are far from submissive. The humor thus relies on the audience’s understanding of these cultural dynamics, making the joke culturally specific and ironic, while also highlighting the absurdity of the statement.

In **Figure 2**, Taj is talking to the head of the investigators, and he uses the phrase “انا ك هيرو فرهت” to humorously explain that, like a hero, he is exhausted. The word “فرهت” in Egyptian slang means “tired” or “worn out,” and Taj is exaggerating his state of exhaustion by comparing himself to a hero who has been through many battles or struggles. So, the phrase “انا ك هيرو فرهت” is Taj’s humorous way of saying, “I’m like a hero, I’m exhausted.” He uses the word “hero” in an ironic sense, implying that his efforts have been heroic, even if the actual situation doesn’t warrant such a grand statement.

Example (2)

Source Translation by Zeemo (Arabic)	Target Translation by Zeemo (English)	Notes
انا كا هيرو فرهت (Irony intonation)	I am Caherro Farhat	Zeemo provides a literal translation of “انا ك هيرو فرهت” as “I am Caherro Farhat.” However, this translation does not make sense in English and does not capture the intended meaning of the original phrase.



Figure 2. Leaving the Humor Unchanged (2).

Zeemo provides a literal translation of “انا ك هيرو” as “I am Caherro Farhat.” However, this translation does not make sense in English and does not capture the intended meaning of the original phrase. In the original Arabic, “فرهت” is an Egyptian slang term meaning “tired” or “worn out.” The phrase “كا هيرو” (like a hero) is used humorously to exaggerate the speaker’s exhaustion, implying he feels like a hero who has just completed an epic battle. Taj is saying he is exhausted, but in an exaggerated way, as if he were a hero, adding a playful, ironic tone to the situation. The phrase should be translated as: “I’m like a hero, I’m exhausted.”

The joke type in the phrase “انا ك هيرو فرهت” fits best

under language-dependent jokes due to its reliance on wordplay and the ironic tone. The humor comes from the exaggeration of Taj’s tiredness, comparing it to a hero’s exhaustion, which adds an absurd and self-deprecating twist to the situation. Zeemo’s literal translation doesn’t capture the full meaning or the humor, as it doesn’t convey the irony or exaggeration inherent in the phrase.

4.1.2. Replacing Humor with Another Instance

In this strategy, the sense of humor involves substituting the original joke with a different one that suits the target culture.

Example (3)

Source Translation by Zeemo (Arabic)	Target Translation by Zeemo (English)	Notes
انا نادرين على اتشقلب لك قدام الناس (Ironic intonation)	I rarely turn to you in front of people.	Zeemo’s literal translation, “I rarely turn to you in front of people,” doesn’t fully capture the humorous tone of the original phrase

In **Figure 3**, the General humorously tells *Taj* that if he wins the battle against Haroon, he will do something as outlandish as performing a flip or some playful gesture in front of everyone. The humor comes from the exaggeration and absurdity of the idea that a highly respected, authoritative figure like a general would do something so childish or funny in front of a crowd. The General is mocking the seriousness of the battle, suggesting that he would go as far

as doing something silly, like a flip, to celebrate.

Zeemo’s literal translation, “I rarely turn to you in front of people,” doesn’t fully capture the humorous tone of the original phrase. The word “شقلب” in Arabic (meaning a flip or somersault) carries a sense of playfulness and physical humor, which the literal translation does not convey. The phrase, in the context of the scene, is intended to be ironic and absurd, as the general is positioning himself as a

serious, authoritative figure who would still do something ridiculous, like a flip, for comedic effect.

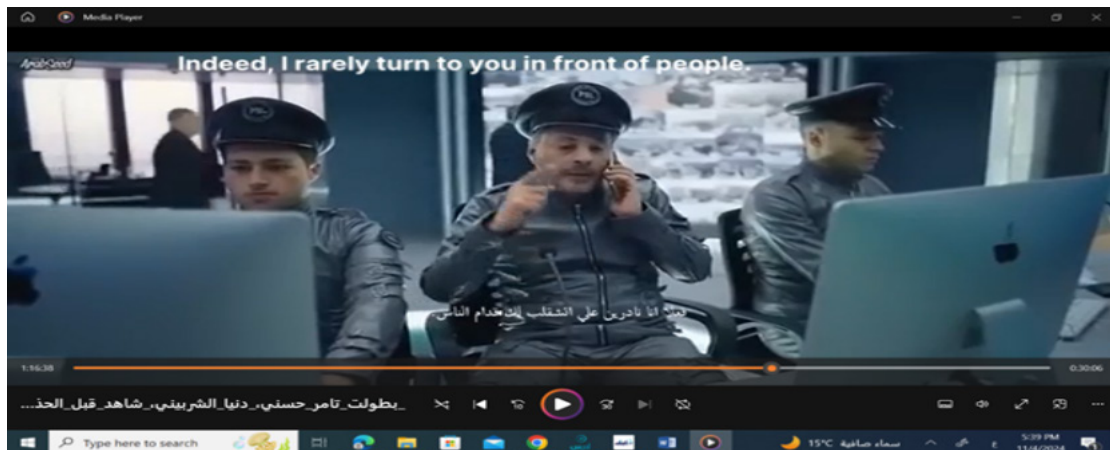


Figure 3. Replacing Humor with Another Instance (1).

The humor in the phrase “شقلب” (“do a flip”) arises from the physical imagery of the general, a serious figure, doing something as playful and absurd as a flip in front of an audience. This contrasts with the expected behavior of someone in a position of power, making it an ironic and exaggerated joke. The literal translation provided by Zeemo doesn’t preserve the visual or playful nature of the phrase, which is central to its humor. However, it should be translated as: “I vowed to flip in front of people for the sake of you.”

Example (4)

Source Translation by Zeemo (Arabic)	Target Translation by Zeemo (English)	Notes
كده حيقوم يشاوحنا كلنا (Ironic intonation)	This is how he will burn; we are all afraid.	Zeemo’s translation, “This is how he will burn; we are all afraid,” is too literal and doesn’t capture the ironic and exaggerated humor of the original phrase.

In **Figure 4**, the General is mocking Haroon after a bullet hits Haroon’s beloved chips (a significant weakness for him). The General sarcastically suggests that Haroon, now angry because his chips were destroyed, will react violently by “slicing” everyone around him in a fit of rage. The word “يشنوح” (which can mean “slice” or “cut up”) is used humorously to suggest that Haroon, in his fury, would start violently chopping or attacking everyone. This exaggerated reaction is meant to be absurd and funny.



Figure 4. Replacing Humor with Another Instance (2).

The humor comes from how over-the-top the General's reaction is. Instead of simply being angry, Haroon is imagined to be so fueled by rage that he would "slice up" everyone around him. The General sarcastically suggests that this will happen next. Zeemo's translation, "This is how he will burn; we are all afraid," is too literal and doesn't capture the ironic and exaggerated humor of the original phrase. The original sentence "حيقوم يشوحنا" uses "يشوح" to mean "cut" or "slice," and this needs to be reflected in the translation for the violence (or absurdity) to come across. The idea is that Haroon will not just be angry, but will become so violent that he will start cutting or attacking everyone around him, which is a comical overreaction. The phrase "we're all finished" reflects the exaggerated sense of impending doom, which is central to the humor.

The joke type fits into the national sense of humor

jokes due to its reliance on irony, exaggeration, and local cultural context. The humor comes from mocking someone's exaggerated self-importance in a way that is familiar to an Egyptian audience, and the ironic intonation helps to underscore the absurdity of the situation. The literal translation provided by Zeemo misses the mark by introducing concepts of fear and burning, which are not present in the original. The phrase works best when it retains the sarcasm and mockery inherent in the original Arabic. However, it should be translated as: "He's going to start giving us all a hard time."

4.1.3. Using an Idiomatic Expression

In this strategy, the sense of humor involves adapting the humor with a comparable idiomatic expression in the target language.

Example (5)

Source Translation by Zeemo (Arabic)	Target Translation by Zeemo (English)	Notes
بس اوعى الشيطان يسوذك زي ما سوحنا كلنا (Ironic intonation)	But do not be aware that Satan will destroy you as he destroyed us all	The original phrase's mock seriousness is essential to the humor, and Zeemo's literal translation doesn't fully convey this playful tone. A more fitting translation would be one that captures the ironic and playful nature of the warning.

In **Figure 5**, Zeemo provides a literal translation of "بس اوعى الشيطان يسوذك زي ما سوحنا كلنا" as "But do not be aware that Satan will destroy you as he destroyed us all." While this is technically a literal translation, it doesn't completely convey the humor and irony present in the original Arabic phrase. The word "يسوذك" (yasouh) is an informal, colloquial expression that means to lead someone astray or mislead them, but it is often used in a playful or lighthearted context, especially in jokes or advice. In this case, it's used to humorously warn someone, almost as if it's mocking the situation rather than being overly serious. Additionally, the use of "Satan" in the phrase adds a layer of exaggerated mock seriousness, as the speaker is warning about something trivial with a heavy-handed metaphor. The humor comes from the exaggeration—using "Satan" and "destroying" in a casual, non-serious way.

In English, the direct translation doesn't quite capture the lighthearted and ironic tone of the original phrase. The expression sounds overly serious and doesn't reflect the

playful warning implied in the Arabic. The suggested translation should be: "Be aware, Satan will lead you astray like he did to all of us." The phrase "بس اوعى الشيطان يسوذك زي ما سوحنا كلنا" fits into language-dependent jokes, as it relies heavily on colloquial expressions and a playful use of language that would be difficult to translate directly into English without losing the humor and irony. The humor comes from the exaggerated metaphor (Satan and destruction) applied to a light, non-serious situation. The original phrase's mock seriousness is essential to the humor, and Zeemo's literal translation doesn't fully convey this playful tone. A more fitting translation would capture the ironic and playful nature of the warning.

In **Figure 6**, Taj is confronted by a woman who is acting very dramatically and hysterically, claiming that someone has stolen her bag. She is shouting and crying out for help over something that seems extremely important to her. However, when Taj retrieves the bag and gives it back to her, he is shocked to find that it is just a bag full of garbage.

What makes the situation even more absurd is the woman's overreaction to what is essentially just trash, leading Taj to be both confused and amused. In the midst of the sit-

uation, Taj sarcastically asks, "انت سكرانة يا حاجة" ("Are you drunk?"), because he can't understand how someone could make such a fuss over something so trivial.



Figure 5. Using an Idiomatic Expression (1).

Example (6)

Source Translation by Zeemo (Arabic)	Target Translation by Zeemo (English)	Notes
انت سكرانة يا حاجة (Ironic intonation)	You are drunk	Zeemo provides a literal translation of "انت سكرانة يا حاجة" as "You are drunk," which accurately conveys the sarcastic tone of the original phrase.



Figure 6. Using an Idiomatic Expression (2).

The humor in this line comes from Taj's incredulity at the woman's behavior. She is acting in a way that seems completely irrational, which leads Taj to believe that something must be wrong with her. He assumes that she is drunk or not in her right mind, which is a funny and ironic reaction, considering the absurdity of the situation. This line highlights Taj's frustration and disbelief at the situation, as

he sarcastically wonders how someone could be so upset over something as meaningless as a garbage bag. However, it should be translated as: "Are you crazy?"

The humor comes from the exaggerated behavior of the woman, which is clearly not matched by the importance of the issue at hand, leading to Taj's playful mockery. Zeemo provides a literal translation of "انت سكرانة يا حاجة" as

“You are drunk,” which accurately conveys the sarcastic tone of the original phrase. The use of the word “drunk” here is essential to maintaining the irony and mocking tone that Taj uses when speaking to the woman. However, the word “حاجة” (meaning “old women”) is omitted; while this does not affect the overall translation, it does alter the cultural context slightly.

The phrase “انت سكرانة يا حاجة” fits best under the na-

tional sense of humor joke category because it is a culturally specific, sarcastic remark used to mock exaggerated behavior.

4.1.4. Ignoring the Humor

In this strategy, the sense of humor will be omitted, and the translation will be too literal.

Example (7)

Source Translation by Zeemo (Arabic)	Target Translation by Zeemo (English)	Notes
والفراخ دي هناكلها كلها ولا هنصلحهم على بعض (Ironic intonation)	We will eat these chickens and we will not advise them to each other.	The literal translation misses the sarcasm or humorous exaggeration inherent in the phrase. This joke category involves exaggeration and absurdity, often used to humorously overcomplicate an otherwise simple decision.

Zeemo provides a literal translation for the entire utterance, but it also offers a word-for-word translation for the expression “والفراخ دي هناكلها كلها ولا هنصلحهم على بعض” as “We will eat these chickens and we will not advise them to each other.” However, it should be translated as “Are we going to eat these chickens or conciliate them?”

In **Figure 7**, the ironic tone is crucial because the

speaker is likely making a joke about the situation—exaggerating the decision-making process over something as simple as sharing food. The literal translation misses the sarcasm or humorous exaggeration inherent in the phrase. This joke category involves exaggeration and absurdity, often used to humorously overcomplicate an otherwise simple decision.



Figure 7. Ignoring the Humor (1).

This is a clear example of exaggeration and absurdity in humor. The humor comes from making a trivial decision seem far more complicated than it needs to be, with an ironic, sarcastic tone that Zeemo’s literal translation fails to convey. A proper translation should preserve the humorous exagger-

ation and sarcasm, showing that the speaker is poking fun at the process of deciding something as simple as how to share food. This joke would fall under *the Complex Joke*, since it mixes absurdity (the overcomplication of a simple decision) and irony (treating a trivial decision as a complex one).

Example (8)

Source Translation by Zeemo (Arabic)	Target Translation by Zeemo (English)	Notes
مالك متكلف ومتشبيك فرحك النهاردة وله ايه (Irony intonation)	Your money is expensive, and your health is strong. Are you happy today or what?	The translation misses the mark because it removes the irony and mockery, turning the phrase into a literal, non-ironic statement that doesn't capture the joke's true meaning.

Zeemo provides a literal translation for the entire utterance, but it also offers a word-for-word translation for the expression “مالك متكلف ومتشبيك فرحك النهاردة وله ايه” as “Your money is expensive, and your health is strong. Are you happy today

or what?” However, it should be translated as “Why are you acting all fancy and putting on airs today? Are you celebrating something?” In **Figure 8**, the ironic intonation and local cultural context are omitted, and the translation is too literal.

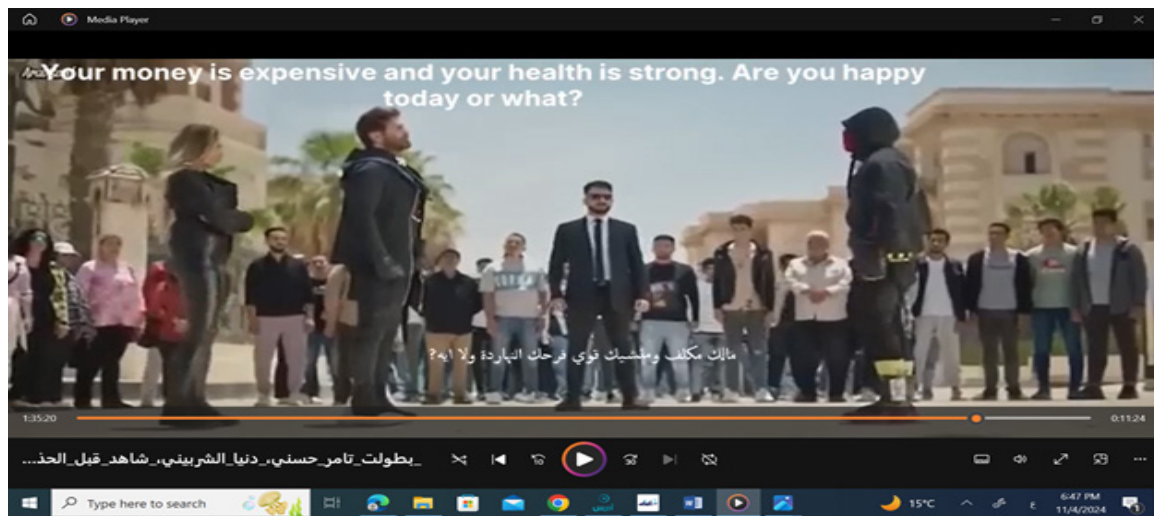


Figure 8. Ignoring the Humor (2).

Furthermore, this joke category is irony with a hint of mockery, often used to humorously criticize someone who is acting overly sophisticated or self-important. This example primarily fits into the national-culture-and-institutions joke category, relying on specific social behaviors and local norms to create humor. The translation misses the mark because it removes the irony and mockery, turning the phrase into a literal, non-ironic statement that doesn't capture the joke's true meaning.

4.2. Discussion

The present study analyzed the effectiveness of Zeemo, an AI-powered subtitling system, in translating humor in the Egyptian film *Taj*, while Mikołčić^[11] examined the strategies employed by human translators in subtitling humor in the TV show *Friends*. Both studies highlight the in-

herent challenges of translating culturally and linguistically dependent humor, yet the approaches and outcomes differ significantly due to the nature of the translator—AI versus human.

In Mikołčić's study^[11], translators employed Chiaro's strategies^[12] extensively, with the first and second strategies (leaving the humor unchanged or adapting it via idiomatic expressions) being most prevalent. This allowed translators to preserve the comedic effect while navigating culture-specific and language-dependent jokes, including puns and culturally bound references. Similarly, in the current study, Zeemo applied Chiaro's strategies^[12], leaving some humor unchanged or replacing it with target-language equivalents. However, the AI system frequently resorted to literal translation or omission when faced with Egyptian-specific cultural references, idiomatic expressions, or

wordplay, resulting in a loss of comedic impact.

The comparison illustrates that while both studies confirm the difficulty of translating humor across languages, human translators exhibit greater flexibility in adapting jokes creatively to maintain the humor, whereas AI systems remain limited by linguistic and cultural constraints^[23]. For instance, complex jokes and language-dependent humor posed substantial challenges for Zeemo, reflecting the need for human intervention to ensure both cultural relevance and linguistic accuracy^[23]. This aligns with Mikolčić's findings^[11] that successful humor translation often requires strategic adaptation rather than strict adherence to the source text.

In conclusion, the juxtaposition of these studies underscores the importance of considering translator type, cultural context, and linguistic nuances in humor translation. While AI-powered subtitling tools like Zeemo show promise for handling straightforward or culturally neutral humor, human translators continue to outperform AI in cases requiring cultural sensitivity, creativity, and nuanced understanding of humor^[23]. Future subtitling research should explore hybrid approaches that combine AI efficiency with human oversight to optimize both accuracy and comedic effect^[23].

5. Conclusions

The primary challenge faced by Zeemo was its difficulty in capturing humor that was rooted in cultural context, wordplay, and irony, which are central to the film's comedic style. The film did not include any international jokes, making it heavily reliant on humor that is specific to Egyptian culture. As such, Zeemo encountered significant challenges when trying to translate jokes that depended on cultural knowledge, local idiomatic expressions, or visual humor. Jokes that relied on sarcasm, puns, and culturally specific references were either inadequately translated or omitted altogether, leading to a loss in comedic impact for the target audience. Zeemo's subtitling strategy largely followed the classification by Chiaro^[6], with a notable number of humor either left unchanged, adapted 65 through idiomatic expressions, or omitted entirely when translation was not feasible.

The system also occasionally replaced humor with culturally appropriate equivalents, though this was not as

common. This reflects Zeemo's attempt to balance linguistic fidelity with cultural adaptation, but it struggled with humor that was deeply rooted in local nuances, making it harder to maintain the original comic effect. Despite these challenges, the study also found that Zeemo's approach was somewhat effective in leaving humor unchanged, which worked for some jokes but fell short when dealing with humor that needed cultural adaptation. Moreover, while Zeemo's system has shown promise in subtitling humor, especially for jokes that are straightforward or culturally neutral, its limitations in translating humor with deep cultural context or wordplay remain clear. For future improvements, Zeemo should enhance its understanding of cultural references and linguistic nuances, particularly for national sense of humor jokes and language-dependent jokes. A hybrid approach that combines AI with human intervention may offer better results, ensuring that humor is accurately adapted for both cultural context and linguistic accuracy.

Future research should also focus on improving the synchronization of subtitles to preserve comedic timing and enhancing the system's ability to handle more complex humor. In conclusion, Zeemo's translation was not sufficient in accurately conveying the humor of the film. Although the system attempted to address the challenges of humor translation by using strategies such as leaving the humor unchanged or employing similar expressions in the target language, a literal translation was prevalent in many cases. This resulted in a significant loss of the comedic impact of jokes and phrases that relied on wordplay or cultural references that were difficult to translate precisely. The literal translation could not capture the subtle nuances of the language or the cultural context that defines Egyptian humor, making some humorous moments less effective or even unintelligible to the target audience. Therefore, there is an urgent need to improve the system's ability to adapt to cultural and linguistic differences to ensure a more accurate and effective translation of humor.

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Conceptualization, A.B.M.K. and A.M.A.-H.; methodology, A.B.M.K.; software, A.B.M.K.; validation, A.B.M.K. and A.M.A.-H.; formal analysis, A.B.M.K.; investigation,

A.B.M.K. and A.M.A.-H.; resources, A.B.M.K.; data curation, A.B.M.K. and A.M.A.-H.; writing—original draft preparation, A.B.M.K.; writing—review and editing, A.M.A.-H.; visualization, A.B.M.K. and A.M.A.-H.; supervision, A.B.M.K. and A.M.A.-H.; project administration, A.B.M.K. and A.M.A.-H. All authors have read and agreed to the published version of the manuscript.

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The authors declare that there are no conflict of interest regarding the publication of this paper.

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