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Human Versus Artificial Intelligence (AI): Challenges in the Legal Translation of English to Arabic Terminology at Yemeni Universities, Taiz

Dr. Mayada Nageeb Al-Maktary

Assistant professor of Linguistics
Taiz University, Yemen

Zainab Abdulbaset Mohammed

Aya Abdulbaset Hassan

Asma Faris Almoughles

Aisha Ibrahim Almekdad

Al-Saeed University, Yemen

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الإنسان والذكاء الاصطناعي: التحديات في ترجمة المصطلحات القانونية من الإنجليزية إلى العربية في الجامعات اليمنية، تعز

د/ ميادة نجيب المقطري

أستاذ اللسانيات المساعد

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الباحثة/ أسماء فارس المغلس

الباحثة/ عائشة ابراهيم المقداد

جامعة السعيد، اليمن

المخلص

هدفت هذه الدراسة إلى مقارنة أداء المترجمين البشر والذكاء الاصطناعي (AI ChatGPT) اعتماداً على ترجمة معيارية لـ 25 مصطلح قانوني باللغة الإنجليزية، والتي تم وضعها في جمل مفيدة. تم جمع البيانات من خلال نموذج بحثي مُعد بدقة، حيث أجاب عليه كل من الذكاء الاصطناعي و12 مترجمة، تتراوح أعمارهن بين 22-30 عاماً، خريجات من جامعات يمنية مختلفة في تعز. تم تحليل البيانات عن طريق جدول الترجمات لتسهيل المقارنة. أظهرت النتائج أن الذكاء الاصطناعي أنتج ثلاث مخرجات من الترجمة: (أ) صحيحة، (ب) صحيحة جزئياً، (ج) غير صحيحة، متجنباً أي ترجمات مفقودة، دالاً ذلك على أنه عمل ضمن إطار أكثر تقييداً. ورغم أنه أنتج ترجمات صحيحة، لا سيما مع المصطلحات القانونية المباشرة، إلا أنه واجه صعوبات مع المصطلحات التي تحتاج إلى فهم عميق للسياق القانوني، مما نتج عنه ترجمة حرفية. بالمقابل، قدمت المترجمات أربع مخرجات من الترجمة: (أ) صحيح، (ب) صحيح جزئياً، (ج) غير صحيح، (د) أو لا شيء على الإطلاق، يسمى استجابة فارغة. تشير إمكانية إنتاج "استجابة فارغة" إلى أن المترجمات يمكنهن إدراك حدودهن وقد يقررن عدم تقديم ترجمة عندما يكن غير متأكدات، مما يضيف بعداً من التقييم الذي يفتقر إليه الذكاء الاصطناعي حالياً. علاوة على ذلك، فإن عدم القدرة على ترجمة بعض المصطلحات القانونية بعكس نقصاً في عمق المعرفة، فضلاً عن نقص الممارسة في الترجمة. بشكل عام، أبرزت الفروقات الملحوظة في مخرجات الترجمة الحاجة إلى تحسين قدرات كل من المترجمات والذكاء الاصطناعي، خاصة في المصطلحات القانونية المتخصصة. وأخيراً، أشارت الدراسة إلى بعض التحديات التي تؤثر في جودة الترجمة، متضمنة العوامل اللغوية والتخصصية والتقنية، موصياً بأن الجمع بين كفاءة الذكاء الاصطناعي وخبرة البشر قد يكون النهج الأمثل لترجمة المصطلحات القانونية بدقة.

الكلمات المفتاحية: الذكاء الاصطناعي (AI ChatGPT)، المترجمون البشر، الترجمة المعيارية، المصطلحات القانونية، الأداء.

Human Versus Artificial Intelligence (AI): Challenges in the Legal Translation of English to Arabic Terminology at Yemeni Universities, Taiz

Mayada Nageeb Al-Maktary

Assistant Professor of Linguistics

Taiz University, Yemen

Zainab Abdulbaset Mohammed

Aya Abdulbaset Hassan

Asma Faris Almoughles

Aisha Ibrahim Almekdad

Al-Saeed University, Yemen

Abstract

This study aimed to compare the performance of human translators (HTsr) and AI (ChatGPT) based on a reference translation (RT) of 25 English legal terms (LTs), which were placed in meaningful sentences. Data was collected through a carefully designed research task, responded to by both AI and 12 female translators aged between 22 and 30, alumni from various Yemeni universities in Taiz. Analysis was conducted by tabulating the translations to organize the collected data for comparison. Findings revealed that the AI has produced three distinct categories of translation outputs: (i) correct, (ii) partially correct, and (iii) incorrect, avoiding missing translations and suggesting that AI operates within a more constrained framework. Although it produced accurate translations, especially with direct LTs, it struggled with terms that required a deep understanding of legal context, yielding literal translations. In contrast, HTrs yielded four types of translation outputs: correct, partially correct, incorrect, or nothing at all, named blank response. The possibility of producing 'blank response' indicates that HTrs can recognize their limitations and may choose not to provide a translation when they are unsure, adding a level of judgment that AI currently lacks. Moreover, the inability to translate some LTs reflects their insufficient depth of knowledge as well as a lack of practice in translation. In general, the significant variability in translation outputs highlighted the need for further improvement of both AI and HTrs capabilities, especially for specialized legal terminology. Finally, the study highlighted some challenges that influence the translation quality, namely linguistic, domain-specific, and technical factors, recommending that a combination of AI efficiency and human expertise might be the ideal approach to accurately translate LTs.

Keywords: AI (ChatGPT), Human translators (HTrs), Reference translation (RT), Legal terms (LTs), Performance.

Introduction

Background to the Study

For a long time, translation has been an essential instrument for facilitating cultural understanding and communication globally. As the world becomes more interconnected, the need for accurate and precise translation services increased dramatically across a variety of domains. Among these, legal translation is one of the most complex areas. It is distinguished by its specialized language that calls for an expert knowledge of legal systems, terminology, and cultural nuances that influence legal texts. According to Smith (1995), to successfully translate legal texts, translators must have (i) comprehensive understanding of both source text and target text's legal systems and (ii) familiarity with the relevant legal terminology. However, legal translators may find it difficult to locate precise translations in the target language that fully capture the meaning of the original terms (Sarcevic, 1997).

Within the nonnative speaker community, there exists what is known as a lexical knowledge gap, where specific parts of speech are occasionally used more frequently than others. For example, the item "Fine" is frequently used as an adjective to denote various meanings, such as referring to something that is satisfactory or acceptable (e.g., 'Everything is fine' means 'Everything is okay'); telling someone that you do not want anything more when they offer you something (e.g., 'I'm fine, thank you' means 'I do not need anything else'); and indicating that a person is in good health (e.g., 'He is fine' means 'He is in good health'). However, when this item is used in a different part of speech, it can take on a different meaning, such as a legal meaning. For example, when it is used as a noun, it refers to money that must be paid as a penalty (e.g., 'He had to pay a fine for speeding' means 'He had to pay a monetary penalty for exceeding the speed limit'). Similarly, the item 'Will' is frequently used as a modal verb to indicate future tenses. For example, 'What time will she arrive?' As a noun, 'will' refers to a legal document that specifies how you want your money and property to be distributed after you die. For example, 'Have you made a will yet?' Accordingly, the challenge arises when nonnative speakers encounter these items in legal contexts and fail to recognize their shift in part of speech and corresponding meaning. This shift in meaning can cause problems during translation, resulting in misunderstandings and inaccurate

translations, as the intended meaning may be quite different from the more common usage of the word.

Recently, artificial intelligence (AI) technology has advanced rapidly, particularly in the field of translation. AI-driven tools can now capture context, idiomatic expressions, and cultural subtleties, making communication more effective than ever before (Al-Romany & Kadhim, 2024; Tahseen & Hussein, 2024). However, the translation of AI can be problematic, as it may struggle to fully comprehend the appropriate context. This can lead to a lack of coherence between the translated term and the surrounding context, causing the overall meaning to be misaligned. Hence, the purpose of the study is outlined in the following section.

Research Objectives

This study aims at:

- 1- Exploring differences between HT and AIT of Legal Terminology from English to Arabic at Yemeni universities in Taiz.
- 2- Investigating the challenges in Human translation (HT) and AI-Driven Translation (AIT) based on a reference translation (RT) for legal terms (LTs) from English to Arabic at Yemeni universities in Taiz.

These objectives are to raise awareness of the potential pitfalls and equip non-native English speakers with the knowledge to better navigate legal terminology and contexts. By understanding the nuances in how certain words are used, we can improve our comprehension and provide more accurate translations, avoiding misinterpretations and ensuring effective communication in legal settings.

Research Questions

This study seeks to address the following key question:

- 1- To what extent do AI and human-produced legal translations differ in quality compared to RT?
- 2- What are the challenges in HT and AIT of Legal Terminology from English to Arabic at Yemeni universities in Taiz?

Literature review

This section lays the groundwork for the present study and highlights its significance. It includes previous studies on legal translation, paying

attention to human and AI approaches. It concludes by highlighting the gap that underscores the need for exploration in this area.

Studies in Legal Translation

Legal translation is the process of translating legal documents and texts from one language to another while preserving their legal validity. It is a specialized field that requires a precise understanding of LTs and scientific language. Interestingly, several studies have addressed the typical challenges associated with translating LTs through common documents involved in legal translation, including contracts, agreements, court documents, statutes, and regulations.

Some researchers suggested that the difficulties in translating LTs stem from the differences in cultural systems between the source and target languages (Al-Awawdeh & Al-Shamayleh, 2023; Al-Tameemi & Farhan, 2016; Altarabin, 2018; Alwazna, 2018; Blidi, 2018; El-Farahaty, 2016). These cultural variations can significantly affect the understanding and use of the target terms. For example, El-Farahaty (2016) explored the challenges faced in legal translation between English and Arabic, particularly focusing on lexical items. The method employed involved analyzing common difficulties in translating legal texts, including culture-specific and system-based terms, archaic terms, and specialized vocabulary. The findings indicated that legal translation requires expertise, professional training, and knowledge of the linguistic and legal systems of the source and target languages, as legal terminology can be system- and culture-specific, obsolete, specialized, and have double or triple meanings.

Additionally, Al-Tameemi and Farhan (2016) investigated the challenges faced by translators when translating legal texts, specifically marriage and divorce contracts, from Arabic to English. The study's method employed includes a theoretical analysis of legal translation, focusing on the characteristics of legal texts and the techniques used, followed by a practical examination of the syntactic, semantic, and cultural difficulties encountered in translating these specific legal documents. The findings showed that significant difficulties arise due to differences in legal systems and cultural contexts, leading to inadequate and inaccurate translations.

Altarabin (2018) conducted a study on the challenges faced in translating legal texts from English to Arabic. This study emphasized the significant

impact these challenges have on the quality of translation. It identified issues such as the lack of uniformity in legal translation, differences within the same legal system, and the translator's unfamiliarity with legal terminology. Its method involved a qualitative analysis of various legal texts, examining the structural differences and contextual meanings that complicate translation efforts. The findings indicated that the differences in legal systems between Arab countries and English-speaking countries create substantial barriers to effective translation, particularly regarding contextual and connotative meanings.

Al-Awawdeh and Al-Shamayleh (2023) evaluated the difficulties encountered in translating English LTs into Arabic and to propose effective solutions to these challenges. The method employed was a simple descriptive approach, specifically an exploratory study design, which allowed the researchers to gather insights into the complexities of legal translation. The findings indicated three primary challenges: the difficulty in finding appropriate equivalents for LTs, a lack of familiarity with the English legal system, and the inability to decode the legal nuances present in the original text. To address these challenges, the study recommended several strategies, including the use of digital tools for translation, identifying the legal nuances accurately, adopting a descriptive or thematic strategy, and implementing a purposive approach to translation.

In the study of Bliidi (2018), a three-part approach were employed: the theoretical classification of legal translation types, the unique features of legal language, and the challenges associated with legal translation were examined to address the issue of equivalence. By utilizing this framework, exam scripts that include the translation of genuine legal texts were analyzed. Findings revealed that the structure of legal documents, along with semantic, pragmatic, and cultural differences, as well as variations in legal systems and laws, necessitate more comprehensive training efforts from educators in translation programs.

While some studies attributed the difficulty of translating LTs to both cultural and linguistic factors. For example, Al Aqad (2014) examined the quality of legal translation between Arabic and English. The research method involved analyzing five marriage contracts translated from Arabic to English by different native translators, employing Baker's (1992) and

Newmark's (1988) theories to assess whether semantic changes impact the quality of translation in terms of equivalence. Findings highlighted the significant challenges in translating LTs from Arabic to English and providing accurate translations of such terms due to linguistic and cultural differences, especially with terms that have no direct English equivalents.

On the other hand, some researchers argued that a lack of knowledge in the legal field among translators also plays a crucial role in these challenges, making accurate and precise translation more difficult. For instance, El-Sadik (2018) examined the challenges faced by BA students at private Jordanian universities when translating lexical LTs. The study aimed to determine whether male or female students exhibit higher proficiency and to identify effective strategies to mitigate these difficulties. The sample consisted of 50 undergraduate students (16 males and 34 females) majoring in English and Translation, selected from three private universities: Al-Zaytoonah University, Amman Al-Ahlyiah University, and Middle East University. To achieve the study's objectives, two methods were employed: (i) a translation test comprising 15 legal sentences, and (ii) interviews with three experts in translation education. The findings revealed that students face various difficulties in translating LTs, primarily due to insufficient knowledge of legal vocabulary, inadequate understanding of translation techniques and methods, and a lack of competence in grasping meanings. The study recommended that students learn appropriate techniques for translating legal texts and familiarize themselves with legal terminology and documents to enhance the quality of their translations.

Overall, the existing literature has focused on the challenges faced by HTrs when dealing with legal terminology, including cultural, linguistic, and system-specific issues. After discussing such considerations without the use of AI, a significant question is now to consider: What impact has AI had on translation?

Studies in Artificial intelligence Translation

Artificial Intelligence (AI) is also called "machine intelligence or computer intelligence" (Cai et al., 2021, p. 3). It is a branch of computer science, aiming at programming machines to simulate human intelligence in thinking and learning processes. It involves creating algorithms and systems that can perform tasks, such as reasoning. A few reasoning examples are

learning, problem solving, inference based on logic, inference based on evidence, and Natural Language Processing (Norris, 2017).

According to Cai et al. (2021), the AI revolution started in several stages. It began in the 1950s with the Dartmouth Conference in 1956, which launched AI research. In the 1960s and 1970s, early AI programs were developed, such as chess programs and natural language processing, but progress slowed down during the "AI winter" due to lack of funding. Interest revived in the 1980s and 1990s with the emergence of expert systems and machine learning. The current AI revolution started in the 2005s to present, fueled by advancements in computational power and the availability of massive datasets, leading to significant progress in deep learning, computer vision, and natural language processing. This ongoing revolution is transforming various fields, including linguistics, law and technology.

Although, the growing use of AI in translation has been a topic of increasing research interest, some studies indicated that human performance is better than that of AI. For example, Wang (2023) compared the performance of AI-powered translations and HTs across different text types, including business texts, news reports, and literary works. English-speaking professionals and non-English professionals were chosen as study subjects to assess the translations from different perspectives and criteria. Findings indicated that that human translator outperformed AI systems in business and news contexts, but AI struggled to match the nuance and artistry of HTs when it came to literary texts. These findings highlighted the ongoing challenges faced by AI systems in replicating the contextual understanding and linguistic ability of HTs, particularly in more complex or creative domains. These findings are in agreement with the study of El-Saadany (2024), which pointed out that machine translation (MT), particularly those generated by ChatGPT, often fail to capture cultural nuances for English proverbs in translating them into Arabic and frequently make errors such as choosing incorrect lexical items and providing overly literal translations. These errors lead to a distortion of meanings and comprehension issues, especially when using strategies like paraphrasing.

In contrast, other studies stated that AI performance is superior to that of HTs. For instance, Al-Romany and Kadhim (2024) examined the contrast

between AI and HT in the legal field. The method involved selecting local and foreign contracts and subjecting them to both human and machine translations, utilizing various AI translation tools like Google Translator and Microsoft Translator. The findings showed a significant gap between human and machine translations, with HT being superior in terms of accuracy and the ability to understand complex legal language. The study recommended that while MT can be a useful tool, it should not replace HTrs, especially in legal contexts where precision is crucial. These conclusions are in line with the study of Tahseen and Hussein (2024), which stated that HT is better than MT, as it uses communicative translation and semantic translation.

Differently, some studies suggested that there is no significant difference between HTrs and AI performance. In the study of Muftah (2022), machine and human translation adequacy from Arabic to English was compared, aiming to identify MT's reliability and potential threat to professional translators. Six texts were translated using nonexpert students and MT services like Google Translate and Babylon Translation, with expert translations comparing against a RT. Findings showed that there is no statistically significant difference between human and machine translations when compared to the RT, showing that MTs were adequate translations. On the other hand, Haque et al. (2019) addressed the critical issue of terminology translation in domain-specific MT, particularly in medical and legal fields, where accurate translation is essential for preserving domain knowledge. The method employed involved the development of an automatic evaluation metric called TermEval. This tool assessed terminology translation quality. This was achieved by creating a standard dataset from an English-Hindi judicial domain parallel corpus and training state-of-the-art phrase-based and neural MT models for evaluation. The findings indicated a high correlation between TermEval scores and human judgments. This observation demonstrates the effectiveness of the proposed metric in evaluating terminology translation, suggesting that TermEval can serve as a more cost-effective solution for identifying term translation issues in MT.

On the other hand, some studies found that the collaboration between humans and AI is the optimal approach. For example, Alkodimi et al. (2024) investigated the impact of AIT tools on the translation and back translation

of literary texts. 80 English-major students at Imam Mohammed Ibn Saud Islamic University were randomly assigned into two experimental groups. Findings revealed that students using AI tools produced better translations and back translations than those using traditional methods, with slightly better performance in back translation.

Thus, previous studies vary from those that suggest human performance is better than that of AI, or vice versa, to those that affirm that the collaboration between humans and AI is the optimal approach. Notably, studies have utilized a variety of data, such as legal contracts and literary texts. However, none have addressed the shift in the contextual meaning of commonly used words in our everyday lives—from their general meanings to the specific meanings that may include, for example, legal interpretations. While people often use certain words as adjectives with widely recognized meanings, these words can assume entirely different meanings when used as nouns in a legal context. Therefore, addressing this gap could have important implications for patient safety and the optimization of translation practices in legal settings.

Research Methodology

The methodology of this study outlines a description of the population and sampling, setting, the selection of LTs, data gathering instruments, data collection process and data analysis instrument.

Population and Sampling

This section of the research study provides an overview of the target population and the sampling approach used by the researchers. The target population for this study consists of female translators who have graduated from translation programs at various universities in Taiz, Yemen. Specifically, it includes translators from Al-Saeed University, Al-Janad University, and the University of Science and Technology.

To ensure the study findings would be representative of the target population, the sample was selected carefully. It consists of 12 female translators between the ages of 22 and 30 years old, who have a bachelor's degree in translation from universities in Taiz, Yemen. The decision to focus the sample on this specific demographic was intentional, as the researchers aimed to gain insights into the experiences of early-career female translators within this age range and educational background.

The selection of LTs

The study utilized 25 English LTs, extracted from *The Abridged Law Dictionary* (Harb, 2022), as a RT. This comprehensive legal dictionary, designed for professionals speaking Arabic, provides definitions and explanations of over 5,000 LTs in Arabic, Latin, and English. It aids attorneys, judges, legal translators, and law instructors in understanding English legal situations. It provides a concise overview of key legal concepts, enabling readers to familiarize themselves with the complex legal landscape. Thus, the 25 LTs were selected based on specific criteria, which are:

- i. The lack of a direct equivalent for the term in the Arabic language, which creates challenges in understanding and translation.
- ii. The ambiguity of meaning, which may pose a difficulty in conveying the concept to the Arabic language.
- iii. Their widespread use in the legal context, which may be unfamiliar to translators who are not specialized in this field.

Table (1) shows that the selected terms included examples of noun, verb, and prepositional phrases, representing a diverse set of challenges in translation, and for further details, please refer to Appendix A.

Table (1): Selected Words for Study

Category	Words
Noun phrase	a money order, minutes, subject, a fine, a summary judgment, action, a game, blackmail, a bank book, unless lease, a tip, a clause, a hammer, the Bar Association, article, the devil, a will, a blood money
Verb phrase	pass, stay, enter, set down, try, call in question
Prepositional phrase	in camera

These terms were placed in legal contexts (sentences) to be translated (see Appendix B). Consequently, it is anticipated that the number of

sentences produced for analysis by the 12 HTrs would be 300, while AIT would yield 25 sentences. This, along with the RT, would result in a total of 350 for the study.

Data Gathering Instruments

The data collection for this study involves two main instruments: Research task and ChatGPT.

The Research task

The research task begins by a welcoming message that invites participants to take part in a translation research study. The purpose is to gather information about the human performance in translating LTs in contexts. Crucially, this section highlights that participation is anonymous and voluntary, with assurances of confidentiality. Participants are encouraged to reach out to the research team with any questions or concerns, and are thanked in advance for their time and insights. Finally, participants are asked to proceed to the translation task and submit their responses. The research task is composed of two main sections:

- Section One (Demographic Information): this section collects data about the participants, including their age, gender (male, female), educational level, translation experience level (beginner, intermediate, advanced, or expert), and preferred translation domains (religious, scientific, literary, or other).
- Section Two (The materials): this section contains 25 LTs placed in legal contexts (sentences) to be translated.

Before presenting the research task to the sample, it was piloted by four individuals. This pilot testing step was necessary to ensure the task's viability before administering it to the main sample. It enabled evaluating the task's difficulty level and its suitability for the participants' capabilities, in addition to establishing the optimal timeframe for completion. This, in turn, helped to ensure the research experience would be effective and achieve the intended objectives.

AI ChatGPT

The researchers used AI ChatGPT to translate 25 sentences and compare them to human translations (HTs) and RT. ChatGPT is an advanced AI-based language model that goes beyond traditional MT. Unlike rule-based or statistical translation systems, it utilizes deep learning techniques to

understand context and provide more natural and accurate translations. It has the ability to continuously learn and improve, making it more flexible and adaptable to different translation scenarios. It represents an evolution in AI-based translation technology, moving beyond the limitations of earlier MT approaches. In this study, the term 'AI' will be used to refer to ChatGPT, as ChatGPT is the only model utilized.

Data collection process

The researcher team utilized social media platforms like WhatsApp and Messenger to identify and connect the target participants to request their participation in the research study. Contacting the participants individually online allowed the researchers to coordinate schedules and find an evening time that worked well for everyone to meet in person at a specific setting. This hybrid online-to-in-person approach helped maximize participation.

At the session, the participants were provided with detailed instructions. They were asked to translate a set of 25 English sentences, each containing a target LT, into Arabic. They were given an hour to complete the translation task, as the researchers believe that one hour is sufficient based on their pretest stage. Additionally, they were asked not to use any AI translation (AIT) tools during the task. The researchers also promised the participants that their responses would be kept confidential, with their real names replaced by pseudonyms, and only the researchers working on the study would have access to assess the translated sentences.

Data analysis instrument

Data analysis involves *tabulation* as a main instrument to analyze data. Tabulation is a fundamental data processing technique that involves organizing data into a tabular format, typically with rows and columns. This format allows for the efficient storage, manipulation, and presentation of data. Therefore, the analysis task entails creating a table with five main columns and 12 rows, as shown in Table 2.

Table (2): Layout of Legal Data Analysis

LT	RT	AIT	HTs		Comparison Notes	
					AIT	HTs
			P1			
			P2			
			P3			
			P4			
			P5			
			P6			
			P7			
			P8			
			P9			
			P10			
			P11			
			P12			

The table components are illustrated as follows:

- i. Target LT: the specific LTs being analyzed.
- ii. RT: the RT of the LTs.
- iii. AIT: the AI-generated translation of the LTs.
- iv. HTs: the translations provided by the 12 human participants, numbered 1-12.
- v. Comparison notes: notes comparing the different translations and identifying any discrepancies or insights.

Thus, the purpose of tabulating the research data in this case is to organize and present the data in a structured format that facilitates analysis and comparison of the different translations for the target LTs.

Analysis and Discussion

This section presents an in-depth analysis of the HTs and AITs of legal terminology from English to Arabic. It then delves into a comparative assessment of these outputs to a RT. Then, it ends with a discussion on the challenges affecting legal translation quality.

Comparison to RT

This section addresses the present research question by exploring to what extent do AI and human-produced legal translations differ in quality compared to RT. After selecting 25 LTs from the aforementioned dictionary, the terms were contextualized and translated from English into

Arabic by 12 female HTs and ChatGPT, the AI tool. This was followed by a comparison between their performance and the RT. Examples of context analyses of some of the targeted LTs are provided below:

Bar association

The RT for "Bar association" is "نقابة المحامين", which accurately represents the meaning of a professional organization for lawyers. When examining AIT, the result offered the correct translation "نقابة المحامين", demonstrating the advantage of the contextual understanding in accurately translating legal terminology, as shown in Table 3:

Table (3): Bar association

LT	RT	AIT	HT		Comparison Notes	
					AIT	HT
Bar association	نقابة المحامين	نقابة المحامين	P1	نقابة المحامين	Correct	Correct
			P2	الحانة		Incorrect
			P3	نقابة المحامين		Correct
			P4	المحامين		Partially correct
			P5	نقابة المحامين		Correct
			P6	_____		Blank response
			P7	اتحاد المحامين		Correct
			P8	جماعة العملاء		Incorrect
			P9	نقابة المحامين		Correct
			P10	نقابة المحامين		Correct
			P11	مؤسسة البار		Incorrect
			P12	نقابة المحامين		Correct

In the examination of the performance of HTs, the following findings appear:

- P1, P3, P5, P7, P9, P10, and P12 provided the accurate translation of "نقابة المحامين", which matched the RT.
- P4 translated it as "المحامين", which was related but did not directly convey the meaning of "Bar association".
- P2 translated it as "الحانة", which was completely unrelated and incorrect.
- P6 did not provide any translation.
- P8 translated it as "جماعة العملاء", which was also inaccurate and did not capture the meaning of "Bar association".

- vi. P11 translated it as "مؤسسة البار", which was closer to the original term but did not fully convey the meaning in Arabic.

Overall, the HT outputs showed significant variability, with some providing the accurate translation, while others produced partially accurate translation, inaccurate translations or blank responses.

The devil

The RT for "devil" is "محام تحت التمرين" (trainee lawyer), which accurately reflects the intended legal meaning. The outputs of translating this term in legal context via AI and HTs are shown in Table 4.

Table (4): Devil

LT	RT	AIT	HT		Comparison Notes	
					AIT	HT
Devil	محام تحت التمرين أو مساعد محامي أو وكيل محامي	الشيطان	P1	_____	Incorrect	Blank response
			P2	الشيطان		Incorrect
			P3	_____		Blank response
			P4	_____		Blank response
			P5	الشيطان		Incorrect
			P6	_____		Blank response
			P7	المحامي		Partially correct
			P8	_____		Blank response
			P9	المحامي		Partially correct
			P10	الشيطان		Incorrect
			P11	الشر		Incorrect
			P12	الشرير		Incorrect

The AIT was "الشيطان", suggesting that the AIT was unable to capture the legal context of the term. On the other hand, the HT outputs were quite varied. Most participants (P2, P5, P10, P11, and P12) translated "the devil" literally as "الشيطان" or "الشرير", missing the legal context entirely. Participants (P1, P3, P4, P6 and P8) did not provide any translation. Only two participants (P7 and P9) translated it as "المحامي" (the lawyer), which captured part of the intended meaning, but did not convey the full context of "a trainee lawyer". Compared to the RT, most of the HTs and AIT failed to convey the precise legal meaning of the term "the devil".

Tip

In legal contexts, the term "tip" is generally considered negative. It often refers to payments given informally or outside official systems, which can be viewed as corruption or a violation of laws. It contrasts with terms like "bonus" or "compensation". According to Harb (2022), it is translated into the Arabic term "بقشيش". This term can also be translated as "رشوة". The AI and human translations for the term 'tip' in legal contexts are compiled in Table (5).

Table (5): Tip

LT	RT	AIT	HT		Comparison Notes	
					AIT	HT
Tip	بقشيش او عطية	رشوة	P1	رشوة	Correct	Correct
			P2	رشوة		Correct
			P3	اكرامية		Incorrect
			P4	رشوة		Correct
			P5	رشوة		Correct
			P6	رشوة		Correct
			P7	بقشيش		Correct
			P8	_____		Blank response
			P9	رشوة		Correct
			P10	اكرامية		Incorrect
			P11	رشوة		Correct
			P12	رشوة		Correct

Interestingly, the AIT correctly translated the term "tip" as "رشوة", which demonstrated the value of understanding the legal meaning. In contrast, the HTrs produced a variety of outputs. P1, P2, P4, P5, P6, P9, P11, and P12 all translated the term as "رشوة", whereas P7 translated it as "بقشيش". Both translations conveyed the intended meaning of the term. However, P3 and P10 translated the term as "إكرامية". This was an incorrect translation, as "إكرامية" carries a more positive connotation, while "بقشيش" has a negative connotation of a bribe or illicit payment. P8 did not provide any translation, likely due to a lack of familiarity with the legal usage of the term.

In summary, the AIT and several of the HTrs (P1, P2, P4, P5, P6, P9, P11, P12, and P7) successfully captured the legal meaning of "tip" using the

appropriate Arabic equivalents. However, the mistranslation by P3 and P10 highlighted the importance of understanding the specific legal context when dealing with technical terminology.

In camera

The legal term “in camera” has been translated into Arabic differently. The RT is “في حجرة المداولة” which refers to a private or closed-door session in a legal proceeding. Table 6 presents the AIT and HTs for the term ‘in camera’ in legal context.

Table (6): In camera

LT	RT	AIT	HT		Comparison Notes	
					AIT	HT
In camera	في حجرة المداولة في غرفة المشورة	جلسة سرية	P1	امام الكاميرا	correct	Incorrect
			P2	في الكاميرا		Incorrect
			P3	سراً		Partially correct
			P4	سراً		Partially correct
			P5	على الكاميرا		Incorrect
			P6	سراً		Partially correct
			P7	من كاميرات المراقبة		Incorrect
			P8	_____		Blank response
			P9	عن طريق الكاميرا		Incorrect
			P10	الكاميرا		Incorrect
			P11	الكاميرا		Incorrect
			P12	ادلة سرية		Incorrect

The ALT offered a possible translation “جلسة سرية” which conveyed the meaning of “in camera”, demonstrating the advantage of grasping the meaning behind the term. In contrast, the HT produced various translations. P3, P4, and P6 provided a partially correct translation “سراً” which captured the meaning of privacy but did not indicate the exact meaning. Meanwhile, P1, P2, P5, P7, P9, P10, P11 and P12 incorrectly translated it into “في الكاميرا”, missing the intended meaning. P8 did not provide any translation, highlighting the difficulty of accurately translating without a clear understanding of the context.

Discussion

Compared to the RT, the findings of this study provided valuable insights into the performance of AI and human outputs compared to RT. The AI ChatGPT has produced three distinct categories of translation outputs: (i) correct, referring to a translation that accurately and fully conveys the meaning and context of the LT in the target language; (ii) partially correct, indicating a translation that only partially captures the meaning and context of the LT, leaving out important details; (iii) and incorrect, meaning a translation that incorrectly conveys the meaning and context of the LT, potentially leading to errors. These errors are attributed to a lack of deep understanding of the legal context.

In contrast, HTrs yielded four types of translation outputs: correct, partially correct, incorrect, or nothing at all, named blank response. Blank response means the complete absence of any translation for a LT, leaving the target term untranslated. These results suggest that the quality of HTrs varied widely. That is, a number of translators produced high-quality translations, while others failed to capture the legal meaning thus translated terms incorrectly or provided no translations. Such variation emphasizes that HTrs need to possess a high level of legal knowledge in order to fulfill the requirements of LT and surpass AI performance.

The comparison between the translation outputs of the AI and HTrs highlights the strengths and limitations of each. The AI categorizes outcomes into three distinct types: correct, partially correct, and incorrect. This suggests that it operates within a more constrained framework. On the other hand, HTrs have a broader range of outcomes, including the possibility of producing “nothing at all”. This indicates that HTrs can recognize their limitations and may choose not to provide a translation when they are unsure, adding a layer of judgment that AI currently lacks. Given that most AI translations are correct, this suggests that the AI is effective in delivering accurate outputs most of the time. However, the errors made by AI indicate their lack of familiarity with the English legal terminology. Similarly, the inability of HTrs to translate some LTs reflects their insufficient depth of knowledge and understanding of the field, as well as a lack of practice in translation.

Irrespective of the nature of translation outcomes for both HTrs and AI ChatGPT compared to RT, several challenges influence their quality, including linguistic, domain-specific, and technical factors. Linguistically, noun phrases can be remarkably complex and ambiguous, posing significant challenges for translation in legal context. Consider the phrase "Bar association". The internal structure of the noun phrase "bar association" is worth examining, where "bar" is functioning as a modifier of the head noun "association", providing additional description. This phrase illustrates some of the challenges in considering linguistic factors. Firstly, there is potential ambiguity in the interpretation of this phrase. "Bar" can be interpreted in multiple ways: it could refer to a physical bar or counter, or it could be referring to the legal profession or community of lawyers. Similarly, "association" could mean a group or organization, or it could have a more general meaning of a connection or relationship. In the present legal context, "bar association" is most likely understood to mean an organization of lawyers. But in a different context, the same phrase could have a different meaning.

Another linguistic issue that can make legal translation challenging is the use of verbs with different meanings in contexts. For example, the verb "to stay" can have multiple meanings - it could mean to remain in a particular place or with a particular person or group, as in *I will stay at home this weekend*. It could also mean suspending the execution of a judgment or decision. The specific verb usage is important for accurate translation in legal settings.

The use of prepositions to create prepositional phrases is a third linguistic issue that can complicate legal translation. For example, the phrase "in camera" can have different meanings depending on the context. In the legal context, "in camera" could literary mean "inside the camera" when referring to something like a device. However, "in camera" could also be expanded to more figurative uses related to privacy and confidentiality. For example, it means "في حجرة المدافلة" which refers to a private or closed-door session in a legal proceeding. This difference in preposition usage can be confusing to translate accurately. Thus, the linguistic examples presented above are merely a glimpse into the broader landscape of how language can be a barrier to effective legal translation. They indicate linguistic complexities, including lexical, syntactic, and semantic issues that arise during translation.

The domain-specific context is particularly crucial in translation, as the accuracy and precision of the language used can have significant implications. If, for example, going back to the translation results of 'the Devil,' it can be observed that even partially correct translations might not be sufficient to acquire the sophisticated and domain-specific knowledge needed for specialized legal terminology, likely due to a lack of familiarity with the legal usage of the term, as emphasized by El-Sadik (2018). Alwazna (2018) attributed the primary cause of untranslatability in legal terminology, especially between languages that are fundamentally different, such as legal Arabic and legal English, to the conceptual asymmetry. On the other hand, El-Farahaty (2016) emphasized that legal translation requires expertise, professional training, and knowledge of the linguistic and legal systems of the source and target languages, as legal terminology can be system- and culture-specific, obsolete, specialized, and have double or triple meanings.

Technically, AIT systems, like ChatGPT, rely on vast datasets to learn language patterns. While they can produce accurate translations for many terms, they often struggle with context-specific meanings and idiomatic expressions. This limitation arises because AI may not fully comprehend the specific intent behind a word in a given context. Such result aligns with the view of El-Farahaty (2016) regarding the inaccuracies in translations produced by AI, highlighting that legal translation requires several elements, including expertise and professional training. Therefore, the present findings underscore the need for human-machine collaboration. In addition, these findings call for the need for improvements in AI models, particularly in the context of translating LTs.

Conclusion

This study aimed to compare the performance and quality of legal translations produced by HTrs versus those generated by an AI system in relation to a RT. The findings of this study provided valuable insights into the performance of AIT and HT outputs. The AI has produced three distinct categories of translation outputs: (i) correct, (ii) partially correct, and (iii) incorrect, avoiding missing translations. Given that most AI translations are correct, this suggests that the AI is effective in delivering accurate outputs most of the time. However, the errors made by AI indicate its lack of

familiarity with the English legal terminology. In contrast, HTRs yielded four types of translation outputs: correct, partially correct, incorrect, or nothing at all, named blank response. The discussion of the study indicated that there are factors that influence the translation quality, namely linguistic, domain-specific, and technical factors. Linguistically, the lexical, syntactic, and semantic complexities pose significant challenges during translation, showing that language can be a barrier to effective legal translation. On a domain-specific scale, both ChatGPT and HTRs faced difficulties when translating terms that have specific meanings in legal contexts. They sometimes tend to translate the terms into their common meanings, failing to accurately convey the intended meaning. For example, concepts like "bar association" and "stay" have precise meanings in legal contexts that can easily lead to misinterpretations if not properly comprehended. Technically, while ChatGPT succeeded in providing speed and consistency, it fell short of the deep contextual understanding required to interpret complex LTs accurately. The fact that AI depends on the data it is trained with means that it may lose the necessary details that are crucial in legal contexts. Finally, the study indicates that although ChatGPT surpasses HTRs in speed and consistency, it is still deficient in capturing the full legal context. At the same time, the variability in human performance necessitates specialized legal knowledge for accurate legal translation. Thus, a combination of ChatGPT efficiency and human expertise may be the ideal approach to accurately translate LTs.

Research Contribution

This study raises awareness of the importance of contextual sensitivity in translation. In other words, it contributes to better mutual understanding between different cultures, particularly in the context of translating legal terminology from English to Arabic. In addition, it is valuable for AI developers and translators in general, legal translators in particular.

Recommendations

The study was limited to comparing the performance of HTRs and AI (ChatGPT) based on a RT for LTs from English to Arabic. It examined a specific level of experience, especially bachelor's degree holders, which could affect the generalizability of the results. Therefore, it is recommended to conduct research that includes participants with diverse experiences in

translation, focusing on both English-to-Arabic and Arabic-to-English contexts, and to compare their performance across various AI systems. In addition, it is suggested that the knowledge must be regularly updated to include the latest LTs, ensuring that both HTs and AI ChatGPT remain relevant and effective. Finally, investigating the possibility of developing a specialized translation system that combines human expertise and AI to improve the accuracy and efficiency of legal terminology translation could be a promising avenue for future research.

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Appendices

Appendix A: Reference Translation (Harb, 2022)

Terms	Legal meaning	page
Bar association	نقابة المحامين	50
Will	وصية	561
In camera	في حجرة المدأولة، في غرفة المشورة	224
Money order	أوالة بريدة	337
Minutes	محضر أو جلسة أو أأتماع أو ألافه	330
Pass	يصدر حكما أو قرارا أو تشريعا أو ألافه	373
Subject	شأص أاضع لقاعدة أو قانون أو ألافه؛ مذن	510
Try	يأكام	538
Devil	أأامي أأأ التمرين أو مساعأ أأامي أو وكيل أأامي	128
Fine	أرامة	175
Summary judgment	أكم مسأعأل	515
Action	أعوى قضائية أو أأراء قضائي	18
Game	صيد بري	184
Article	أأاة في قانون أو قرار أو أأد في أأد	36
Blackmail	أأهيد بالأيذاء يأهأ إلى الأأأاز	57
Hammer	أأع بالمزأ العلني	197
Enter	يأأع (أريضة أعوى أألا)	153
Blood money	أية	57
Clause	أأط أو أأد في أأد أو أأرر	80
Call in question	يأأض أو يأأزع أو يأأأ أو يأأعن في	64
Bank book	أأأر شبكات	48
Stay	يأوقف أأأأأ أكم أو قرار أو ألافه	504
Tip	أطية أو أأرامية أو بأشيش	530
Unless lease	أأد إأأار أأأراطي	544
Set down	يأأأ في أأول أو أأانة	490

Appendix B: Research Task**Dear participants,**

We are pleased to invite you to participate in our translation research task. This task involves translating a set of 25 English sentences into Arabic. It will approximately take an hour to finish.

We kindly request that you refrain from using any online or AI-powered translation tools while working on this task. Your participation is both anonymous and voluntary. Your responses will be kept completely confidential, and only the researchers involved in this study will have access to the translated sentences to be assessed based on predefined criteria.

We sincerely appreciate your time and contribution in advance to this important research. Your participation will, of course, provide valuable data that will be used to further our understanding of the translation process.

If you agree to take part, please proceed to the translation task below. Thank you for considering this request.

Researchers:

Mayada Nageeb Al-Maktary: mayamqtari@gmail.com

Zainab Abdulbaset Mohammed: alamersadeem963@gmail.com

Aya Abdulbaset Hassan: ayahassan2649@gmail.com

Asma faris Almoughles: asmaalmoghalis09@gmail.com

Aisha Ibrahim Almekdad: aishaibra263229@gmail.com

Section 1

Before beginning the translation task, please provide the following demographic information:

Demographic Information

1. Age: Please specify the age category you belong to:
 - a. 22-30 years
 - b. 31-40 years
 - c. 41-50 years
 - d. 51-60 years
 - e. 61 years and above
2. Gender:
 - a. Male
 - b. Female
3. Education Level:
 - a. Bachelor
 - b. Master
 - c. PhD
 - d. Other (please specify): _____
4. Translation Experience:
 - a. Beginner
 - b. Intermediate
 - c. Advanced
 - d. Expert
5. Preferred Translation Domains:
 - a. Religious
 - b. Scientific
 - c. Technical
 - d. Medical
 - e. Legal
 - f. Literary
 - g. Other (please specify): _____

Section 2

Translate these 25 English sentences into Arabic.

1. The Bar Association is the organization responsible for managing the affairs of lawyers.

2. It means that the writer intended the document to serve as a will.

3. To protect witnesses, the court allows them to testify in camera or use pseudonyms.

4. Actually, I want it in a money order.

5. If more appropriate the detail may be shown in the Minutes of the Meeting.

6. I pass no judgements either.

7. The government shall protect the rights of its subjects.

8. The defendant was tried for premeditated murder before the criminal court.

9. The devil conducted the legal research and gathered the necessary information for the case.

10. If you are not registered you may pay a fine.

11. The court granted a summary judgment in favor of the plaintiff.

12. The plaintiff filed a legal action against the defendant.

13. There is a bag limit on the number of game animals that can be hunted.

14. Article 5 of the constitution guarantees freedom of speech.

15. Blackmail is considered a serious criminal offense.

16. The hammer came down on the final bid of \$500,000.

17. The lawyer will enter an appearance on behalf of the client.

18. The blood money was paid to the family as compensation for the death resulting from the accident.

19. The employment contract contains a clause that requires the employee to be present in the office five days a week.

20. The lawyer was able to call into question the testimony of the plaintiff's witness, which impacted the plaintiff's position in the case.

21. Please insert your bank book.

22. The defendant requested a court order to stay the execution of the eviction decision issued.
23. One of the lawyers was suspended from work due to accepting a tip.
24. Unless the lease is signed by both parties, it is not legally binding.
25. The court has set down the hearing for next month.

Thank you for your participation!

Appendix C: Artificial Intelligence Translation (AIT) Response

1. The Bar Association is the organization responsible for managing the affairs of lawyers.
نقابة المحامين هي المنظمة المسؤولة عن إدارة شؤون المحامين.
2. It means that the writer intended the document to serve as a will.
يعني أن الكاتب قصد أن يكون المستند وصية.
3. To protect witnesses, the court allows them to testify in camera or use pseudonyms.
لحماية الشهود، يسمح لهم المحكمة بالإدلاء بشهاداتهم في جلسة سرية أو استخدام أسماء مستعارة.
4. Actually, I want it in a money order.
في الواقع، أريده في حوالة بريدية.
5. If more appropriate the detail may be shown in the Minutes of the Meeting.
إذا كان من الأنسب، يمكن عرض التفاصيل في محضر الاجتماع.
6. I pass no judgements either.
أنا لا أصدر أي أحكام أيضاً.
7. The government shall protect the rights of its subjects.
على الحكومة أن تحمي حقوق رعاياها.
8. The defendant was tried for premeditated murder before the criminal court.
تم محاكمة المتهم بتهمة القتل العمد أمام المحكمة الجنائية.
9. The devil conducted the legal research and gathered the necessary information for the case.
قام الشيطان بإجراء البحث القانوني وجمع المعلومات اللازمة للقضية.
10. If you are not registered you may pay a fine.
إذا لم تكن مسجلاً، قد تدفع غرامة.
11. The court granted a summary judgment in favor of the plaintiff.
منحت المحكمة حكماً ملخصاً لصالح المدعي.
12. The plaintiff filed a legal action against the defendant.
قدم المدعي دعوى قضائية ضد المتهم.

13. There is a bag limit on the number of game animals that can be hunted.
هناك حد لعدد الحيوانات البرية التي يمكن صيدها.
14. Article 5 of the constitution guarantees freedom of speech.
تضمن المادة 5 من الدستور حرية التعبير.
15. Blackmail is considered a serious criminal offense.
يُعتبر الابتزاز جريمة جنائية خطيرة.
16. The hammer came down on the final bid of \$500,000.
انتهى المزاد بعرض نهائي قدره 500,000 دولار.
17. The lawyer will enter an appearance on behalf of the client.
سيقوم المحامي بالدفاع عن العميل.
18. The blood money was paid to the family as compensation for the death resulting from the accident.
تم دفع الدية لعائلة المتوفى كتعويض عن الوفاة الناتجة عن الحادث.
19. The employment contract contains a clause that requires the employee to be present in the office five days a week.
يحتوي عقد العمل على بند يتطلب حضور الموظف في المكتب خمسة أيام في الأسبوع.
20. The lawyer was able to call into question the testimony of the plaintiff's witness, which impacted the plaintiff's position in the case.
تمكن المحامي من التشكيك في شهادة شاهد المدعي، مما أثر على موقف المدعي في القضية.
21. Please insert your bank book.
يرجى إدخال دفتر البنك الخاص بك.
22. The defendant requested a court order to stay the execution of the eviction decision issued.
طلب المتهم أمراً قضائياً لوقف تنفيذ قرار الإخلاء الصادر.
23. One of the lawyers was suspended from work due to accepting a tip.
تم تعليق أحد المحامين عن العمل بسبب قبول رشوة.
24. Unless the lease is signed by both parties, it is not legally binding.
ما لم يتم توقيع عقد الإيجار من كلا الطرفين، فإنه ليس ملزماً قانونياً.
25. The court has set down the hearing for next month.
حددت المحكمة جلسة الاستماع للشهر القادم.

Appendix D: A participant's sample response

2

Section 1
Before beginning the translation task, please provide the following demographic information:

Demographic Information

1. Age: Please specify the age category you belong to:
 (a) 22-30 years
 b 31-40 years
 c 41-50 years
 d 51-60 years
 e 61 years and above

2. Gender:
 a Male
 (b) Female

3. Education Level:
 (a) Bachelor
 b Master
 c PhD
 d Other (please specify): _____

4. Translation Experience:
 a Beginner
 (b) Intermediate
 c Advanced
 d Expert

5. Preferred Translation Domains:
 a Religious
 b Scientific
 (c) Technical
 d Medical
 e Legal
 f Literary
 g Other (please specify): _____

Section 2
Translate these 25 English sentences into Arabic.

1. The Bar Association is the organization responsible for managing the affairs of lawyers.

 المحاماة هي منظمة مسؤولة عن إدارة شؤون المحامين

2. It means that the writer intended the document to serve as a will.

2

هذا يعني أن المحكمة تذكر المستند للتحقق أيضاً

3. To protect witnesses, the court allows them to testify in camera or use pseudonyms.

محكمة القضاء تسمح للمدعى بالتصريح في المحكمة أو استخدام
اسم مستعار

4. Actually, I want it in a money order.

في الحقيقة أريد أن يكون كاش

5. If more appropriate the detail may be shown in the Minutes of the Meeting.

من أجل ذلك يمكن أن تظهر التفاصيل في سجل الاجتماع

6. I pass no judgements either.

أنا لا أصدر أحكاماً

7. The government shall protect the rights of its subjects.

يجب على الحكومة حماية الحقوق لمواطنيها

8. The defendant was tried for premeditated murder before the criminal court.

المدعى كان قد تم محاكمته بتهمة القتل العمد في المحكمة الجنائية

9. The devil conducted the legal research and gathered the necessary information for the case.

الشیطان أجّز الأبحاث القانونية وجمع المعلومات اللازمة للحالة

10. If you are not registered you may pay a fine.

إذا لم تكن مسجلاً
فقد عليك دفع غرامة

11. The court granted a summary judgment in favor of the plaintiff

المحكمة منحت حكماً ملخصاً لصالح المدعي

12. The plaintiff filed a legal action against the defendant

المدعي ألقى دعوى قضائية ضد المدعى

13. There is a bag limit on the number of game animals that can be hunted.

يوجد حد معين لعدد الحيوانات التي يمكن اصطيادها

14. Article 5 of the constitution guarantees freedom of speech.

حرف الرأي تضمن في حرية الكلام

15. Blackmail is considered a serious criminal offense.

الابتزاز يعتبر جريمة خطيرة

16. The hammer came down on the final bid of \$500,000.

تم طرף المطرقة على آخر عرض بقيمة 500,000 دولار

17. The lawyer will enter an appearance on behalf of the client.

مستطع المحامي تمثيل العميل

18. The blood money was paid to the family as compensation for the death resulting from the accident.

تم دفع فدية للفقراء كإعانة على نفقة الفقراء

19. The employment contract contains a clause that requires the employee to be present in the office five days a week.

يحتوي عقد العمل على شرط أن يكون الموظف حاضراً في المكتب خمسة أيام في الأسبوع

20. The lawyer was able to call into question the testimony of the plaintiff's witness, which impacted the plaintiff's position in the case.

نجح المحامي في دحض شهادة الشاهد الذي كان في مصلحة المدعي في القضية

21. Please insert your bank book.

الرجاء إدخال دفتر الحسابات

22. The defendant requested a court order to stay the execution of the eviction decision issued.

أنا، المدعى، أطلب المحكمة أن يكون قرار الإخلاء هذا غير قابل للتنفيذ

23. One of the lawyers was suspended from work due to accepting a tip.

كانت إحدى المحامين قد أوقفت عن العمل بسبب قبوله رشاوى

24. Unless the lease is signed by both parties, it is not legally binding.

لا يمكن أن يكون العقد ملزمًا قانونيًا إلا إذا وقعته كلتا الطرفين

25. The court has set down the hearing for next month.

أجرت المحكمة جلسة الاستماع للشخص التالي

Thank you for your participation! *****