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# Machine Translation and CAT Tools in Legal Translation: A Descriptive Linguistic Case Study on the Lisbon Treaty

## الترجمة القانونية والترجمة الآلية وأدوات الترجمة بمساعدة الحاسوب: دراسة لغوية وصفية لمعاهدة لشبونة

## دراسة حالة معاهدة لشبونة

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**Abstract:**

Translation resources have evolved from paper dictionaries to AI-powered systems. This study compares Google Translate (MT) and SDL Trados 2021 (CAT) in translating the Lisbon Treaty from English to Arabic, evaluating lexical, syntactic, semantic, and pragmatic accuracy. It examines the impact of NMT and CAT on the accuracy of legal translation. The findings provide insights into the strengths and limitations of both tools in legal translation.

**Keywords:** CAT tools; Google Translate; Legal translation; Machine translation MT; SDL Trados.

**ملخص:**

تطورت مراجع الترجمة من القواميس الورقية إلى أنظمة الترجمة الآلية المدعومة بالذكاء الاصطناعي. تهدف هذه الدراسة إلى مقارنة Google Translate (MT)وSDL Trados 2021 (CAT)في ترجمة معاهدة لشبونة من الإنجليزية إلى العربية، مع تقييم الدقة المعجمية والنحوية والدلالية والتداولية. تركز الدراسة على تأثير الترجمة الآلية العصبية (NMT) والترجمة بمساعدة الحاسوب (CAT)على دقة الترجمة القانونية. وتقدم النتائج رؤى حول نقاط القوة والضعف في كلتا الأداتين في عملية الترجمة القانونية.

**كلمات مفتاحية:** الترجمة الآلية، الترجمة بمساعدة الحاسوب، الترجمة القانونية، Google Translate، SDL Trados.

## 1. Introduction:

The rapid development of neural machine translation (NMT) and computer-assisted translation (CAT) tools has transformed the translation landscape, providing faster and more cost-effective solutions for a wide range of texts, including legal documents. While these tools are widely

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**Cahiers de Traduction**
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used, their accuracy in translating complex legal language remains a significant area of research and debate.

This study aims to assess the impact of NMT and CAT on legal translation accuracy, specifically comparing Google Translate (NMT) and SDL Trados 2021 (CAT). The guiding research question is: "How do NMT and CAT influence the accuracy of legal translation?" To address this, the study examines translations of selected legal sections from the Lisbon Treaty, chosen for its complex legal terminology and institutional significance.

Based on a descriptive linguistic case study approach, the study evaluates translations across four levels: lexical, syntactic, semantic, and pragmatic accuracy. These analyses assess how each tool handles legal terminology, sentence structure, and meaning in translating key legal provisions, with attention to their impact on legal precision and institutional tone.

By examining these translations, the study highlights the strengths and limitations of both machine translation and computer-assisted translation tools in the context of legal translation.

## 2. Literature Review

### 2.1 Machine Translation (MT)

Machine Translation (MT) refers to the automatic translation of text by a computer program without direct human involvement. Imre (2013) defines MT as a process whereby an activated computer program analyzes a source text to produce a target text automatically. Vasconcellos (2001) further elaborates that:

"The technology whereby computers attempt to model the human process of translating between natural languages. The computer, rather than a person, generates the 'output'—though it is only a rough draft, not yet fit for most types of consumption" (p. 697).

MT is thus useful for generating rough drafts, but the output typically requires revision and post-editing by translators—especially for specialized domains like legal translation.

According to the online article *Different Types of Machine Translation* by Post (2018), the main types of machine translation are:

- **Statistical Machine Translation (SMT):** Relies on statistical models derived from large bilingual corpora to determine word correspondences.
- **Rule-Based Machine Translation (RBMT):** Utilizes grammatical and syntactic rules to generate translations, often requiring extensive post-editing.
- **Hybrid Machine Translation (HMT):** Combines SMT and RBMT, leveraging translation memories to improve quality while minimizing errors.
- **Neural Machine Translation (NMT):** Uses artificial neural networks to model translation processes, enabling context-aware output that approximates human

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
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translation quality (Post, 2018; International Annual Meeting on Language Arrangements, Documentation, and Publications, 2019).

While MT facilitates faster translation of large texts, human intervention is often necessary to ensure semantic accuracy, cultural appropriateness, and readability (Jia, Carl, & Wang, 2019).

### 2.2 Computer-Assisted Translation (CAT)

CAT tools support human translators with translation memories (TM), terminology management, and alignment tools. Unlike MT, CAT tools do not replace humans but enhance consistency, efficiency, and quality (Esselink, 2000, as cited in Doherty, 2016). Key features of CAT tools include:

- **Translation Memory (TM)**: Stores previously translated segments to maintain consistency (Hutchins, 2003b, as cited in Alotaibi, 2020).
- **Terminology Management** in CAT tools stores source–target term pairs for manual or automatic retrieval, saving time and ensuring consistency in multi-translator projects (Garcia, 2014, p. 73; Bowker, 2002, p. 77).
- **Alignment Tools**: Convert parallel texts into segments for future reuse in TM databases (Garcia, 2014, p. 75).
- **Concordance Search**: Allows searching for terms within translation memories rather than entire segments, enhancing flexibility (MemoQ, n.d.).

Popular CAT tools include SDL Trados, MemoQ, DéjàVu, and Wordfast, with SDL Trados widely used in professional translation environments (Lagoudaki, 2006). CAT tools improve translation productivity and consistency, though they also shift translators' roles toward post-editing MT outputs (Doherty, 2016).

### 2.3 Challenges in Legal Translation

Legal translation involves complex interactions between linguistic, cultural, and legal systems. Translators must ensure precision, maintain formal register, and preserve the binding effects of the source text.

#### 2.3.1 Linguistic and Cultural Challenges

Legal terms often lack direct equivalents across languages. Translators must navigate differences between English common law and Arabic civil or Islamic law systems. Terms like plaintiff, tort, or trust may not have clear Arabic counterparts, requiring careful lexical selection (Benaouda, 2023, p. 364). Additionally, legal language is formal and syntactically complex; failing to preserve this can create ambiguity or misinterpretation.

#### 2.3.2 Systemic Differences Between Legal Traditions

Differences between legal systems create further challenges. Common law relies on precedent, whereas civil law emphasizes codified statutes. Arabic legal systems, influenced by Islamic

Cahiers de Traduction
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

jurisprudence, may conceptualize legal principles differently, necessitating comparative legal knowledge for accurate translation (Benaouda, 2023, p. 364).

### 2.3.3 Arabic-Specific Translation Issues

Arabic legal texts often feature complex sentences, nominalizations, and formal expressions. Translators must render these features accurately into English while preserving meaning and style. The absence of standardized legal terminology in Arabic can also cause inconsistencies, particularly across jurisdictions (Halimi & Alwazna, 2023).

## 2.4 Approaches and Strategies in Legal Translation

Effective legal translation relies on several strategies that bridge linguistic and legal gaps.

### 2.4.1 Terminology Management

Maintaining accurate and consistent terminology is central to legal translation. CAT tools with term bases and glossaries facilitate the management of specialized vocabulary, reducing ambiguity and ensuring uniformity across translations (Garcia, 2014; Bowker, 2002). This strategy is particularly important in the context of legal texts, where specific terminology must be preserved to ensure the meaning and legal force are maintained. By using terminology management systems, translators can ensure that terms are translated consistently throughout the text and across multiple documents.

### 2.4.2 Nominalization and Syntactic Adjustments

Arabic legal texts frequently employ nominalization and complex sentence structures to achieve formality and objectivity. Translators may need to adjust syntactic structures when translating into English to preserve legal authority and readability (El-Farahty, 2015). Nominalization in Arabic is a common feature in legal drafting, where actions or processes are turned into nouns. Translators often need to adjust these to maintain the formal and authoritative tone of the original text, especially in the context of international treaties or legal agreements.

### 2.4.3 Post-Editing of Machine Translation

Although MT provides speed, its raw output often requires human post-editing to ensure semantic accuracy, preserve legal register, and align with target legal systems. As Jia, Carl, and Wang (2019) emphasize: “Raw MT output cannot always meet the end user’s expectations in terms of translation quality, thus making MT plus post-editing a necessary and standard practice” (p. 60). Post-editing ensures that the final translation meets the required standards of legal accuracy and preserves the intended meaning of the original text. This is especially important in legal translation, where even small errors can have significant consequences.

## 3. Methodology

This study is a **descriptive linguistic case study** aimed at assessing the impact of **neural machine translation (NMT)** and **computer-assisted translation (CAT)** on the **accuracy** of **legal translation**, specifically comparing **Google Translate** and **SDL Trados 2021**. The primary objective is to describe how these translation tools handle **legal terminology**, **syntax**,

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

**semantic clarity**, and **pragmatic function** in legal texts, and how they influence the **accuracy** of the translated text.

**Why These Tools?**

- **Google Translate** was selected because it is a **widely used NMT system**, uses neural network architectures to translate entire sentences, improving fluency and accuracy over phrase-based methods (Wu et al., 2016). It provides an opportunity to analyze how **machine-generated translations** handle **legal language**, specifically focusing on **general usability** and **linguistic correctness** in translating legal terms.
- **SDL Trados 2021**, as a professional **CAT tool**, was chosen because of its specialized features for **legal translation**. **SDL Trados** is widely used in the legal field and is designed to preserve **precision** and **contextual relevance**, making it an ideal tool for examining how a **CAT system** manages **legal accuracy** and **formal tone**.
-

**Why This Text?**

The **Lisbon Treaty** was selected as the **source text** for this case study because of its **complex legal terminology** and **binding authority** in EU law. This treaty is a rich source of **legal terms** and **institutional language** that provides a suitable case for examining the **linguistic challenges** faced by **NMT** and **CAT** tools when translating **legal discourse**.

**Measuring Accuracy: Four Levels of Descriptive Linguistic Analysis**

This study measures **accuracy** through four key **linguistic levels**:

1. **Lexical Accuracy**: **Lexical accuracy** refers to the degree of precision with which **lexical items** are transferred from the **source text (ST)** to the **target text (TT)**. **Newmark (1988, p. 118)** emphasizes that **lexical choices** in translation must reflect both **dictionary meaning** and **contextual nuances**. In **legal translation**, **Cao (2007, p. 57)** highlights that **terminological precision** is crucial because any **deviation** may alter the **binding legal effect** of a provision. The analysis of **Google Translate** and **SDL Trados** at this level focused on how each tool rendered **key legal terms** such as **subsidiarity** and **inalienable rights**, comparing their use of **appropriate legal terminology**.
2. **Syntactic Accuracy**: **Syntactic accuracy** concerns the rendering of **grammatical structures**, **word order**, and **overall formal organization** of sentences. **Hatim and Mason (1997, p. 146)** argue that **syntactic integrity** is crucial in specialized texts, particularly in **legal ones**, since **formal structures** often reflect **hierarchical legal reasoning** and **legislative authority**. This analysis examined how **Google Translate** and **SDL Trados** structured their translations, especially whether **Google Translate**'s simplified syntax affected **legal formality**, and whether **SDL Trados**'s more **complex constructions** maintained the **formal tone** necessary for legal discourse.
3. **Semantic Accuracy**: **Semantic accuracy** involves conveying the **intended meaning** of the source text without **distortion**, **omission**, or **unnecessary addition**. (**Baker, 2011, p. 12)** stresses that the **propositional content** and **interpretive value** must be preserved to avoid **ambiguity**, particularly in **legal contexts** where **interpretation** can affect **implementation**. For instance, the **semantic analysis** focused on how each

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

system handled **inviolable** and **inalienable** rights, ensuring that **Google Translate's** tendency to merge these concepts did not **distort their legal meanings**, and whether **SDL Trados** retained the **distinctiveness** of these terms.

4. **Pragmatic Accuracy**: **Pragmatic accuracy** evaluates how well the translation aligns with the **intended audience** and the **pragmatic goals** of the legal text. According to **Belbia and Kellou (2023)**, **pragmatic analysis** emphasizes ***intentionality*** (purpose), ***acceptability*** (audience reception), and ***situationality*** (context) as essential norms to preserve meaning, ensure comprehension, and adapt texts effectively across languages and cultures.
5.

**Data Collection and Comparison**

The study compares **Google Translate** and **SDL Trados**'s translations of selected sections from the **Lisbon Treaty**. A **descriptive comparison** of these translations is made at the **lexical**, **syntactic**, **semantic**, and **pragmatic** levels to identify how **translation choices** impact **accuracy** and **legibility**.

## 4. Results and Analysis

- **Sample one**

| Source Text | Google Translate | SDL Trados 2021 |
|---|---|---|
| **AMENDMENTS TO THE TREATY** ON EUROPEAN UNION AND **TO** THE TREATY **ESTABLISHING** THE EUROPEAN COMMUNITY | **التعديلات على معاهدة الاتحاد الأوروبي والمعاهدة المنشئة للجماعة الأوروبية** | **التعديلات المدخلة على معاهدة** الاتحاد الأوربي والمعاهدة **التأسيسية للجماعة** الأوربية |

The first sample consists of the translation of the treaty title and will be analyzed at the following levels:

**Lexical Accuracy**

The two translations use different words for the English "establishing."

- **Google Translate** uses *"المنشئة"* (*al-munshiʾa*). This word, which simply denotes a "creator" or "initiator," is a broad term that lacks specialized legal nuance, reflecting a general-purpose lexical choice.
- **SDL Trados** uses *"التأسيسية"* (*al-taʾsīsīya*). This word aligns with the legal definition of *"establish"* as *"to institute (as law) permanently by enactment or agreement*" (Merriam-Webster's Dictionary of Law, 2011, p. 1815). The term *"تأسيسية"* also corresponds to the definition in Almaany Dictionary (n.d) as *"relating to the institution of bases and principles, or to the enactment of laws and rules,"* reflecting a specialized lexical choice.

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

For the word *"treaty,"* both translations use *"معاهدة"* (*maʿāhada*). This choice is consistent with the definition of a treaty as *"a formally concluded and ratified agreement between states"* (*Oxford Dictionary of Law*, 2009, p. 546). Both systems, therefore, adhere to the standard legal term for this concept.

In legal translation, such lexical precision is crucial, as terminology carries binding legal implications.

**Syntactic Accuracy**

The translations differ in their grammatical structure, specifically in how they connect the concepts of *"amendments"* and *"treaty."*

- **Google Translate** employs a direct noun–prepositional phrase: *"التعديلات على معاهدة"* (*al-taʿdīlāt ʿalā maʿāhada*). This structure is a straightforward parallel to the English *"amendments to,"* reflecting a concise syntactic approach.
- **SDL Trados** adds a participle: *"التعديلات المدخلة على معاهدة"* (*al-taʿdīlāt al-mudkhala ʿalā maʿāhada*). The term *المدخلة*("introduced") functions as a descriptive modifier that makes the action more explicit.

In legal translation, such variations are secondary to the requirement of accuracy. As Šarčević (1997) emphasizes, formal accuracy is vital to ensure that legal translations preserve the binding force and institutional authority of the original text (p. 71). From this perspective, both syntactic choices remain acceptable as long as they maintain the clarity and precision expected in legal discourse.

**Semantic Accuracy**

The translations convey the meaning of the source text using different semantic relationships between words, which result in subtle but distinct differences in interpretation.

- **Google Translate** renders the phrase as *"المعاهدة المنشئة للجماعة الأوروبية"* (*al-muʿāhada al-munshiʾa lil-jamāʿa al-ūrūbiyya*). The participle *منشئة*("creating") semantically presents the treaty as a general act of creation.
- **SDL Trados** produces *"المعاهدة التأسيسية للجماعة الأوروبية"* (*al-muʿāhada al-taʾsīsiyya lil-jamāʿa al-ūrūbiyya*). The adjective *تأسيسية*("foundational/constitutive") conveys a more institutional sense of establishing.

The semantic contrast therefore lies in scope: Google's version describes the treaty as a general act of creation, while SDL's version frames it as constitutive and foundational. As Cao (2007) notes, legal translation requires capturing both "the solemnity and precision" in meaning (P.38).

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

These two renderings thus illustrate different semantic approaches: one general and accessible (*منشئة*), the other institutionally specific (*تأسيسية*).

**Pragmatic Accuracy**

The translations exhibit different pragmatic styles, reflecting different assumptions about the intended audience and context.

- **Google Translate's** style is concise and direct. It aims for a functional translation that is easily understood by a general audience (**Acceptability**). The pragmatic goal is to inform without added legal formality.
- **SDL Trados**'s style is more explicit and formal. The use of terms like *"التأسيسية"* and the participle *"المدخلة"* demonstrates a focus on legal precision (**Intentionality**). This explicit style aligns with a formal, legal register and a more specialized target audience (**Situationality**).

As Belbia and Kellou (2023) observe, pragmatic analysis shows how translation choices reflect both communicative intent and audience expectations. Here, Google prioritizes accessibility, while SDL foregrounds institutional precision.

- **Sample two**

| Source Text | Google Translate | SDL Trados 2021 |
|---|---|---|
| The Treaty on European Union **shall be amended** in accordance with the provisions of this Article. | معاهدة الاتحاد الأوروبي **تعدل** وفقاً لأحكام هذه المادة. | معاهدة الاتحاد الأوروبي **تُعدل** وفقاً لأحكام هذه المادة. |

The second sample consists of the translation of the treaty preamble and will be analyzed at the following levels:

**Lexical Accuracy**

Both translations demonstrate complete lexical parallelism. The phrase "The Treaty on European Union" is rendered as "معاهدة الاتحاد الأوروبي" and "the provisions of this Article" as "أحكام هذه المادة". The verb root عدل is used in both cases to render "amended." This lexical choice is significant in legal Arabic because تعديل is the standardized term for "amendment" in treaties and legislation. According to Al-Maany Dictionary (n.d.), عدل in the legal context specifically denotes "to modify or alter a legal text by formal procedure," which aligns precisely with the sense of amendment in treaty law. This terminological consistency is a key principle in legal translation. The fact that both MT systems adopt عدل reflects adherence to established legal usage, which reduces the risk of misinterpretation and secures equivalence across versions.

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

**Syntactic Accuracy**
Both translations follow the same structure: verb–subject–adverbial phrase, a standard order in Arabic legal drafting.

- **Google Translate:** "تعدل" is unvocalized, which leaves open the possibility of reading it in the active voice.
- **SDL Trados:** "تُعدل" is vocalized, explicitly marking the passive form.

The English phrase "shall be amended" is a prescriptive passive construction. The modal verb "shall" indicates a binding legal obligation, while the passive form focuses the action on the treaty. SDL's diacritical precision ensures this accuracy, while Google relies on contextual interpretation.

**Semantic Accuracy**
Both translations convey the intended meaning: the treaty is subject to amendment according to the provisions of the article.

- Google's "تعدل" semantically allows the passive reading but risks ambiguity without diacritics.
- SDL's "تُعدل" semantically secures the passive voice, leaving no room for misinterpretation.

As Cao (2007) notes, modality and voice are central to legal effect, since they determine whether authority is expressed as obligation, agency, or institutional action. The English modal verb "shall" conveys a mandatory obligation, which SDL's rendering of "تُعدل" accurately and explicitly captures, strengthening semantic clarity by explicitly fixing the passive.

**Pragmatic Accuracy**
The pragmatic orientation of the two translations differs in terms of audience and communicative intent.

- **Google Translate**: This version is concise and functional, pragmatically reflecting Acceptability for general comprehension but is less explicit in formal legal terms.
- **SDL Trados**: This version is more precise and formal, with vocalization reinforcing Intentionality (clarity of purpose) and Situationality (institutional expectations of precision in treaties).

As Belbia and Kellou (2023) observe, pragmatic analysis reveals how translation choices reflect audience needs and institutional context. Google favors accessibility, while SDL ensures institutional clarity.

- **Sample three**

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

| Source Text | Google Translate | SDL Trados 2021 |
|---|---|---|
| ‘**DRAWING INSPIRATION** from the cultural, religious and humanist inheritance of Europe, **from which have developed the universal values of the inviolable and inalienable rights of the human person, freedom, democracy, equality and the rule of law**,’; | "**وإذ تستلهم** من التراث الثقافي والديني والإنساني لأوروبا، الذي تطورت منه القيم العالمية لحقوق الإنسان **غير القابلة للانتهاك** أو **التصرف**، والحرية، والديمقراطية، والمساواة، وسيادة القانون،"؛ | **استخلاص العبر** من الإرث " الثقافي والديني والإنساني لأوروبا ، **الذي وضع من خلاله القيم العالمية لحقوق الإنسان والحريات والديمقراطية والمساواة وسيادة القانون ، التي لا يجوز المساس بها وغير القابلة للتصرف" ؛** |

The third sample consists of the translation of a treaty article and will be analyzed at the following levels:

**Lexical Accuracy**

The two translations show significant lexical divergence in some key terms.

- **Google Translate** uses *التراث*(al-turāth) for “inheritance,” a word that generally refers to cultural heritage or traditions. According to *Al-Maany Dictionary* (n.d.), *التراث* emphasizes the cultural or historical dimension of what is transmitted.
- **SDL Trados** opts for *الإرث*(al-irth), which *Al-Maany Dictionary* (n.d) defines as “something passed down, often with legal or moral implications.” This choice therefore introduces a legal and institutional nuance that *التراث*lacks.
- For the expression “drawing inspiration from,” Google renders it as *وإذ تستلهم من*(drawing inspiration), while SDL uses *استخلاص العبر من*(deriving lessons from). The former reflects a process of inspiration or guidance, whereas the latter implies reflective lesson-drawing, a more rhetorical register.
- Regarding the verb “developed,” Google uses *تطورت*(gradually developed), aligning with the semantic idea of natural historical evolution. SDL, however, uses *وضع*(to lay down/establish), which reframes the values as deliberately instituted rather than organically developed.
- For “inviolable and inalienable,” Google merges the two into *غير القابلة للانتهاك أو التصرف* (not subject to violation or disposal). SDL separates them: *لا يجوز المساس بها*(inviolable =

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

"secure from violation or profanation") and غير القابلة للتصرف(inalienable = "incapable of being alienated, surrendered, or transferred") (Merriam-Webster's Dictionary of Law, 2011, p. 2540). This distinction reflects what Black (2004) stresses: legal texts require precise terminology to reflect institutional or normative actions. SDL's rendering, by distinguishing between inviolability and inalienability, preserves the specialized dual legal concepts, whereas Google's fusion blurs them.

**Syntactic Accuracy**

The translations differ in their syntactic strategies, particularly in how they render the participial structure of the source text ("Drawing inspiration…").

- **Google Translate** uses the active verb تستلهم(tastalhim). While grammatically correct, this verbal clause introduces a subjective tone that is less formal and less consistent with Arabic legal drafting norms. Moreover, Google's arrangement of adjectives and nouns creates structural ambiguities: descriptors such as "inviolable" and "inalienable" are not clearly linked to their referent, and key terms like "freedom, democracy, equality, and the rule of law" risk being mismatched, weakening syntactic clarity.
- **SDL Trados** maintains a formal Arabic legal construction through استخلاص العبر من الإرث الثقافي والديني والإنساني, employing a nominalized phrase that is structurally and stylistically appropriate for legal texts. It also preserves Arabic grammar rules by placing adjectives (e.g., غير القابلة للتصرف/ لا يجوز المساس بها) directly after the nouns they modify, and by keeping all elements of the source clause intact.

This difference reflects what El-Farahaty (2015) observes: Arabic legal genres favor nominalization over verbal structures to reinforce **formality, objectivity, and solemnity**. By adopting a nominal structure and maintaining accurate syntactic alignment, SDL Trados upholds the precision and readability required in international treaty translation.

**Semantic Accuracy**

Both translations convey the core semantic idea that Europe's heritage led to the development of universal values. However, they diverge in their semantic framing and precision.

- **Google Translate**, using تطورت منه("developed from it"), maintains the original semantic nuance of a gradual, organic evolution. It portrays the values as a natural outgrowth of the heritage.
- **SDL Trados**, using وضع من خلاله("established through it"), shifts the semantic focus to a deliberate and intentional act of creation. This phrasing is more aligned with legal and institutional discourse, where norms are formally "laid down" or "instituted" rather than simply "developing."

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

A further difference arises in the treatment of *"inviolable"* and *"inalienable.*

- **SDL's Semantic Precision**: SDL renders the two terms separately as لا يجوز المساس بها (inviolable) and غير القابلة للتصرف(inalienable). This distinction preserves the unique legal force of each concept, reflecting the precision required in legal drafting.
- **Google's Semantic Fusion**: Google merges the two into غير القابلة للانتهاك أو التصرف("not subject to violation or disposal"). While semantically understandable, this fusion blurs the distinction and risks oversimplification in legal contexts, where each term carries specific normative weight.

The semantic contrast, therefore, lies both in the representation of Europe's heritage—Google presents a narrative of natural evolution, while SDL frames it as institutional enactment—and in the treatment of human rights concepts, where SDL preserves their distinct meanings and Google fuses them.

**Pragmatic Accuracy**
The pragmatic orientation of the two translations differs in terms of audience and communicative intent.

- **SDL Trados**: This translation prioritizes **Situationality** and **Intentionality**. The use of rhetorical and formal terms like استخلاص العبر من(deriving lessons from) and وضع(to lay down/establish) signals that the text is a solemn, foundational document. The clear separation of لا يجوز المساس بها(inviolable) and غير القابلة للتصرف(inalienable) ensures the precision required by a legal audience, reinforcing the authoritative tone. The pragmatic goal is to produce a translation that is not only accurate but also stylistically appropriate for a legal treaty, which is meant to be a binding and solemn declaration.
- **Google Translate**: This translation prioritizes **Acceptability** and directness. The use of more common, less rhetorical terms like وإذ تستلهم من(drawing inspiration from) and تطورت منه(developed from it) makes the text easily accessible to a broader, non-specialized audience. The fusion of "inviolable" and "inalienable" into a single phrase simplifies the legal concepts, which might be a pragmatic choice to avoid over-complicating the text for a general reader. The pragmatic goal here is to convey the main idea clearly and concisely, even if it means sacrificing some of the formal register and terminological precision of the original.

In essence, SDL's pragmatic choices are geared toward a specialized, legal context, while Google's are oriented toward broader public consumption.

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

- **Sample four**

| Source Text | Google Translate | SDL Trados 2021 |
|---|---|---|
| **Under the principle of subsidiarity,** in areas which do not fall within its **exclusive competence, the Union shall act only if and insofar** as the **objectives of the proposed action** cannot be sufficiently achieved by the Member States, **either at central level or at regional and local level**, but can rather, by reason of the scale or effects of **the proposed action**, be better achieved at Union level. | **وبموجب مبدأ التبعية، لا يتصرف الاتحاد في المجالات التي لا تقع ضمن اختصاصه الحصري إلا إذا لم تتمكن الدول الأعضاء من** تحقيق **أهداف العمل المقترح** بشكل كافٍ، سواء على المستوى المركزي **أو على المستوى** الإقليمي والمحلي، **ولكن** يمكن تحقيقها بشكل أفضل على مستوى الاتحاد **بسبب نطاق أو آثار العمل المقترح.** | **وبموجب مبدأ التبعية، في المجالات التي لا تدخل في نطاق اختصاصها الحصري، لا يتصرف الاتحاد إلا إذا تعذر** تحقيق أهداف **الإجراءات المقترحة** بما فيه الكفاية من جانب الدول الأعضاء، سواء على المستوى المركزي **أو على الصعيدين** الإقليمي والمحلي، **بل يمكن بالأحرى، بسبب نطاق أو آثار الإجراء المقترح، أن يتحقق على نحو أفضل على مستوى الاتحاد.** |

The fourth sample consists of the translation of the treaty conclusion and will be analyzed at the following levels:

**Lexical Accuracy**

The most significant lexical issue arises with the translation of *subsidiarity*. Both Google Translate and SDL Trados render it as *مبدأ التبعية*. In Arabic legal terminology, however, *مبدأ التبعية* is typically associated with *vicarious liability*—legal responsibility for another's actions (Legal Information Institute, n.d.). This does not capture the EU principle of subsidiarity, which refers to *multi-level governance* where higher authorities intervene only if lower levels cannot effectively achieve objectives. The formal Arabic equivalent in EU and international law is *مبدأ الولاية الاحتياطية*(United Nations Terminology Database, n.d.).

The two translations overlap in core legal terms but diverge in their handling of precision and register.

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

- **Google Translate** uses *المجالات التي لا تقع ضمن اختصاصه الحصري* for "areas which do not fall within its exclusive competence," and *يتصرف الاتحاد* for "the Union shall act." The verb *يتصرف* ("to act/behave") is somewhat broad and can carry connotations of conduct or behavior rather than institutional legal action.
- **SDL Trados** uses *المجالات التي لا تدخل في نطاق اختصاصها الحصري* for "areas which do not fall within its exclusive competence," with *لا تدخل في نطاق* sounding more formal and legalistic than *لا تقع ضمن*. For the verb, it uses *لا يتصرف الاتحاد* as well, but later nuances with *يتحقق* (to be realized/achieved).

For *proposed action*, the systems diverge.

- **Google Translate** uses *العمل المقترح* (proposed work), which is a general, everyday word.
- **SDL Trados** uses *الإجراء المقترح* (proposed measure), a more precise legal term denoting formal institutional acts.

This difference aligns with Black's (2004) observation that legal texts require terminology reflecting **institutional and normative actions**, making SDL's choice legally more accurate.

**Syntactic Accuracy**
Both translations preserve the conditional and restrictive structure of the source text but differ in clarity and flow.

- **Google Translate** follows a straightforward clause order, beginning with *لا يتصرف الاتحاد... إلا إذا لم تتمكن الدول الأعضاء...* This mirrors the "shall act only if" condition in English, but its chaining of clauses makes the sentence heavy.
- **SDL Trados** restructures slightly: *في المجالات التي لا تدخل في نطاق اختصاصها الحصري، لا يتصرف الاتحاد إلا إذا تعذر تحقيق...* The use of *تعذر تحقيق* ("if it proves impossible to achieve") is syntactically tighter and reflects a legal drafting norm in Arabic that prioritizes nominalized precision over broad verbal forms.

Additionally, SDL uses *بل يمكن بالأحرى... أن يتحقق على نحو أفضل...* for "but can rather… be better achieved." This phrase (*بالأحرى*) strengthens the adversative relation and increases rhetorical clarity, whereas Google simply uses *ولكن يمكن تحقيقها...* As El-Farahty (2015) notes, Arabic legal texts favor **nominalization and explicit connectors** to enhance clarity, solemnity, and logical precision—features more visible in SDL's rendering.

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

**Semantic Accuracy**

Both translations struggle to convey the specific legal principle of subsidiarity accurately, as they both render it as مبدأ التبعية (which refers to vicarious liability, not multi-level governance) instead of the correct مبدأ الولاية الاحتياطية used in EU law. This misrendering introduces a significant semantic distortion.

- **Google Translate:** Renders subsidiarity as مبدأ التبعية, implying vicarious liability and making the translation semantically inaccurate in a legal context. Furthermore, the phrase العمل المقترح ("proposed work") weakens the legal specificity of the original text, which should focus on formal legal action (إجراء).
- **SDL Trados:** Also uses مبدأ التبعية for subsidiarity, compounding the semantic error. However, its choice of الإجراء المقترح ("proposed measure") is more appropriate for a legal context, as it captures the formal sense of "action" better than Google Translate's العمل المقترح.

Both translations misinterpret key **legal terminology**, weakening the **semantic accuracy** of the text. Additionally, Google Translate's use of the **active voice** ("the Union shall act") does not convey the legal **obligation** inherent in the original English, which uses "shall act." SDL Trados does not fully capture this **legal imperative** either, but its more formal phrasing يتصرف الاتحاد is closer to the intended **institutional tone** by using **"**إجراء**".**

**Pragmatic Accuracy**

Both translations misinterpret the subsidiarity principle, failing to convey the intended institutional tone of the EU legal text. Since subsidiarity is central to governance and law, this misinterpretation could lead to confusion in legal contexts.

- **Google Translate:** Pragmatically, it prioritizes accessibility and general comprehension, simplifying legal concepts for a broader audience. However, the use of مبدأ التبعية (vicarious liability) and العمل المقترح ("proposed work") undermines the legal specificity required in a treaty. This simplification compromises the precision and institutional authority expected in legal discourse.
- **SDL Trados:** While also failing to render subsidiarity correctly, SDL employs more formal phrasing such as الإجراء المقترح ("proposed measure") and بل بالأحرى ("but rather"), reflecting a more institutional tone suitable for legal texts. Despite these strengths in legal register and rhetorical clarity, the incorrect translation of subsidiarity still diminishes its situational appropriateness.

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

As Belbia and Kellou (2023) emphasize, pragmatic analysis reveals how translation choices reflect both audience expectations and the institutional context. In this case, both translations fall short of capturing the institutional authority and legal precision necessary in EU governance and law.

## 4. Conclusion:

This study examined the impact of neural machine translation (NMT) and computer-assisted translation (CAT) on the accuracy of legal translation, focusing on Google Translate and SDL Trados 2021. The purpose was to assess how these tools handle lexical, syntactic, semantic, and pragmatic aspects of translating the Lisbon Treaty from English into Arabic.

The analysis revealed that both systems face challenges in translating complex legal terminology. Key terms such as *subsidiarity* were rendered incorrectly as مبدأ التبعية, leading to semantic inaccuracies and affecting the pragmatic appropriateness of the translations. Google Translate generally chose simpler, more accessible terms (e.g., *المنشئة*, *العمل المقترح*), which facilitated comprehension but reduced legal specificity. In contrast, SDL Trados used more formal and precise terminology (e.g., *التأسيسية*, *الإجراء المقترح*), maintaining institutional tone and semantic accuracy, though sometimes at the expense of accessibility.

Syntactic choices further influenced translation outcomes: Google Translate simplified sentence structures, improving readability but weakening formal authority, while SDL Trados preserved complex, nominalized constructions typical of legal Arabic, supporting legal precision and coherence. Lexical and syntactic decisions together shaped semantic clarity, which in turn impacted pragmatic outcomes, with Google prioritizing general comprehensibility and SDL emphasizing legal formality and audience expectations.

Overall, the study highlights the interdependence of lexical, syntactic, semantic, and pragmatic levels in legal translation. While Google Translate provides accessibility for a general audience, SDL Trados ensures greater legal and institutional accuracy, making it better suited for specialized legal contexts. These findings emphasize the importance of selecting translation tools according to context, target audience, and required legal precision. Although this study focused on linguistic aspects, full legal accuracy also requires professional legal expertise and post-editing, as linguistic correctness alone doesn't guarantee legal adequacy. In legal translation, fidelity to legal meaning must prevail over surface-level linguistic form.

## 5. Bibliography List:

1. Al-Maany Dictionary. (n.d.-a). إرث. https://www.almaany.com/ar/dict/ar-ar/إرث/
2. Al-Maany Dictionary. (n.d.-b). تأسيس. https://www.almaany.com/ar/dict/ar-ar/%D8%AA%D8%A3%D8%B3%D9%8A%D8%B3%D9%8A%D8%A9
3. Al-Maany Dictionary. (n.d.-c). تراث. https://www.almaany.com/ar/dict/ar-ar/%D8%AA%D8%B1%D8%A7%D8%AB/#google_vignette
4. Al-Maany Dictionary. (n.d.-d). عدل. https://www.almaany.com/ar/dict/ar-ar/%D8%B9%D8%AF%D9%84/

**Cahiers de Traduction**
Volume 31 Issue 02/November 2025 pp 526/542
ISSN 1111- 4606 EISSN 2602-6023

5. Alotaibi, H. M. (2020). Computer-assisted translation tools: An evaluation of their usability among Arab translators. *Applied Sciences, 10*(24), 1–13. https://doi.org/10.3390/app10249359
6. Baker, M. (2011). *In other words: A coursebook on translation* (2nd ed.). Routledge.
7. Belbia, F. A., & Kellou, Y. (2023). Comprehension norms from a pragmatic perspective and its relationship with translation: Samples from the novel *Dimashq yā Basmah al-Huzn* and its translation *Sabriya: Damascus Bitter Sweet*. *ALTRALANG Journal, 5*(01), 511–520. https://doi.org/10.52919/altralang.v5i01.306
8. Benaouda, A. (2023). Legal translation in Algeria: The justice scales to the test of equivalence. *ALTRALANG Journal, 5*(3), 359–374. https://doi.org/10.52919/altralang.v5i3.374
9. Black, H. C. (2004). *Black's law dictionary* (8th ed.). Thomson West.
10. Bowker, L. (2002). *Computer-aided translation technology: A practical introduction*. University of Ottawa Press.
11. Cao, D. (2007). *Translating law*. Multilingual Matters.
12. Doherty, S. (2016). The impact of translation technologies on the process and product of translation. *International Journal of Communication, 10*, 947–969.
13. El-Farahty, M. (2015). *Nominalization in Arabic legal genres* (Doctoral dissertation). University of Exeter.
14. Garcia, I. (2014). Computer-aided translation: Systems. In C. Sin-wai (Ed.), *The Routledge encyclopedia of translation technology* (pp. 68–87). Routledge.
15. Halimi, S., & Alwazna, R. Y. (2023). Issues addressed in Arabic legal translation: A future perspective. In F. Prieto Ramos (Ed.), *Issues in Arabic legal translation: New insights into the field* (pp. 436–450). Cambridge Scholars Publishing.
16. Hatim, B., & Mason, I. (1997). *The translator as communicator*. Routledge.
17. Hutchins, W. J. (2003). Machine translation: A concise history. *Computer Translation, 18*(1), 1–14.
18. Jia, Y., Carl, M., & Wang, X. (2019). How does the post-editing of neural machine translation compare with from-scratch translation? A product and process study. *The Journal of Specialised Translation, 31*, 60–86. https://jostrans.org/issue31/art_jia.pdf
19. Legal Information Institute. (n.d.). Vicarious liability. Cornell Law School. https://www.law.cornell.edu
20. Lagoudaki, E. (2006). Translation memories survey 2006: Users' perceptions around. *Translating and the Computer, 28*, 1–29. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1063.6423&rep=rep1&type=pdf
21. Merriam-Webster. (2011). *Merriam-Webster's dictionary of law*. Merriam-Webster, Incorporated.
22. MemoQ. (n.d.). Why use CAT tools. https://files.memoq.com/hubfs/eBooks/memoq_why_cat_tools_ebook.pdf
23. Newmark, P. (1988). *A textbook of translation*. Prentice Hall.
24. Oxford University Press. (2009). *Oxford dictionary of law* (7th ed.). Oxford University Press.
25. Post, N. (2018, June 22). Different types of machine translation. *Localize.* https://localizejs.com/articles/types-of-machine-translation/
26. Šarčević, S. (1997). *New approaches to legal translation*. Kluwer Law International.
27. United Nations Terminology Database (UNTERM). (n.d.). Subsidiarity principle. https://unterm.un.org
28. Vasconcellos, M. (2001). Terminology and machine translation. In I. S. G. (Ed.), *Handbook for terminology management* (Vol. 2, pp. 697–724). John Benjamins Publishing.
29. Wu, D., Schuster, M., Le, Q., Macherey, W., Serson, K., & Mané, D. (2016). Google's neural machine translation system: Bridging the gap between human and machine translation. *Google Research Blog.* https://research.google.com