

The Role of AI and Legal Linguistics in Ensuring Compliance with Language Requirements in International Law

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Abstract - The integration of Artificial Intelligence (AI) into international law has resulted in significant advancements, particularly in ensuring compliance with language requirements in legal documents. This article investigates the intersection of AI, especially Natural Language Processing (NLP), and legal linguistics to address challenges in multilingual legal communication and interpretation. The study critically analyzes how AI tools improve the accuracy, consistency, and legal validity of international legal texts. The paper examines the limitations of NLP models, noting their difficulty in managing complex legal terminologies and their dependence on contextual accuracy. The discussion highlights the intercultural complexities faced during legal translation and the socio-legal and ethical considerations that emerge when AI is integrated into legal workflows. Furthermore, the role of digital tools, including institutional repositories and online legal databases, is emphasized as a critical factor in facilitating legal knowledge dissemination and standardization. While AI-driven NLP and machine translation have improved the speed and accessibility of legal information, the findings suggest that these technologies alone are insufficient for meeting the precision required by legal texts. The paper concludes by advocating for a hybrid model, combining AI tools with human legal expertise to achieve higher quality, culturally sensitive, and legally valid translations and interpretations within international legal frameworks.

Keywords: Artificial Intelligence, Legal Linguistics, Natural Language Processing, Legal Translation, International Law, Machine Translation, Multilingualism, Legal Compliance, Legal Communication, AI Ethics

I. INTRODUCTION

Driven by technological advances, Artificial Intelligence has already secured its presence in most aspects of life, including international law (Said et al., 2024). In consideration of the pivotal role language plays in legal settings, a machine error can straightforwardly lead to compliance issues. An idea is

developed that AI language models will become essential for ensuring compliance with language requirements in international law (Tunga, 2021). The idea fosters the examination of the underlying problems and proposes a more advanced way for AI language models to manage them (Ismail, 2024). It will increasingly obligate to follow rather sophisticated language requirements in international legal documentation. Existing and foreseeable opportunities are identified for AI language models to help in this regard, whereas their primary capabilities are not beyond standard big models meant for processing natural language. As a contribution to this nascent field, creative, utility-oriented, and broadly adaptable approaches are presented to extend the versatility of AI language models for legal communication purposes, enabling them beyond basic language understanding and generation tasks (Eldho, 2016; Liu & Tang, 2024).

Due to the fast evolving technical support of the language model phenomenon and the growing complexity of international legislation, it is argued that more advanced solutions will be needed there, touching upon somewhat more advanced linguistic problems in legal documentary texts. Simple NLP and NLG capabilities of AI models and the excessive emphasis on matching word groups, clauses, sentences, or other basic building blocks could be complemented or replaced by other more creative, utility-oriented, and broadly adaptable solutions of a rather different nature. Such solutions aim to tackle linguistic surfaces to comply with requirements rooted in the respective law for cooperation and for the documents with specific legal consequences. Approaches are presented and analyzed for improving or replacing shallow text matching in terms of content or word-group similarity with a more insightful or

language-conformant approach that goes beyond the units of the input language model's training (Lai et al., 2023).

II. LITERATURE REVIEW

The interplay of law, linguistics, artificial intelligence, and information systems is an active participant in defining contemporary research (Jouya & Khayati, 2017). Goddard, (2009) explores the function of legal translation as a link among other legal cultures when English becomes a means of intercultural legal communication. This broaches the issue of translating legal concepts between systems that have various terminologies and legal logic.

Karimov & Doniyorov, (2019) discuss variant views regarding hadiths to explain how religious literature intersects with legal interpretation, further obscuring legal translation in Muslim settings. Similarly, Karimov et al., (2024) analyze how mobile apps facilitate the growth of tourism, indirectly showing how legal information systems, if digitalized, also need to efficiently serve multilingual populations.

Khaydarova et al., (2024) and Nazarova et al., (2024) highlight the salient role played by physical and virtual libraries to provide cultural and legal knowledge in order to feed academic and professional translation exercises. Kurbanazarova et al., (2024) also refer to how NLP-based speech recognition technology can empower learning of a language and thus comprehension of the law.

Lai et al., (2023) offer a broad survey of the use of large language models (LLMs) in law, whereas Larsson (2019) critically examines the socio-legal impact of artificial intelligence. Mahari et al., (2023) directly address the disconnect between NLP and legal research and propose ways of enhancing the precision of machine translation in legal contexts.

Saini, (2018) highlights the critical role of digital preservation through institutional repositories, being relevant to both legal document dissemination and archiving. Pistilli et al., (2023) and Goltz et al., (2018) both address issues of ethics and regulation in connection with AI usage in legal work. Lastly, Umarova et al., (2024) highlight the role of online databases in developing academic and professional access to knowledge in law and culture.

Background and Significance

Conflicts and disputes between nations date back to ancient times. The majority were the outcome of misunderstandings, including those flowing from different languages used by the involved actors. Thus, language barriers have always been recognized as a significant impediment to cooperation and peaceful coexistence between nations. With the growth of globalization, the plurality of languages used by legal cultures became particularly problematic in the scope of the proper interpretation and enforcement of law. The phenomenon of increasing legal interaction beyond the

borders of nations and growing interpenetration of legal systems is described as the emergence of a polycentric legal order that is based on a multitude of autonomous legal sources, both national and international (Goddard, 2009). Inescapably, as a corollary of these developments, there is an accompanying augmentation in the responsibilities inherent to the translation of law. This is most visibly noticeable in the modalities underpinning the functioning of the international community of nations. The need for effective translation of treaties, conventions, and other legal acts arises insofar as these are expected to be understood by all the participants in international contacts. Communication within the scope of international law is required jointly of specific legal conditions and requirements, which only professionals – typically, legal translators – are able to satisfy. In the extreme case, in which an intricate legal act was rendered into a language formerly uncommon in its legal sense, the existing linguistic version may remain virtually unintelligible, prompting disputes and challenges to compliance even when clear from the original. Starting from the Treaty of Versailles, more legal texts have been drawn up, amended, and agreed upon in more than one language to eliminate misunderstandings between separate drafts. Apart from the UN, the specificity of particular international law formation and national coexists with the advent of drafting agreements, especially between nations of diverse legal heritage, in numerous language versions of equivalent authenticity. Examples of the dilemmas faced daily by lawyers and judges would include how to understand legal terms in general application, unspecific language meaning; how to deal with lawmaking constructions whose first expression is proposed as unsure; or how to apply the law when language perfection is imperfect and is regularly imprecise, incorrect, or obscure. Often, mistranslation stands in the background of controversies or even conflicts between different jurisprudential traditions. The issue of language is brought up also at the very start of debating a draft resolution at the UN preparatory bodies, when relying on the rules of procedure the chair reads out the draft's title.

III. LANGUAGE REQUIREMENTS IN INTERNATIONAL LAW

One of the numerous challenges that face translators of legal texts is maintaining accuracy while adapting source texts to target cultural and legal systems in compliance with established linguistic norms. The language(s) of a treaty should be specified (Goddard, 2009), thereby establishing specific requirements in this area and facilitating the translation process. However, not all treaties and conventions necessarily fulfill this criterion, and certain countries may ratify agreements and enact legislation despite reading comprehension that is incomplete or reliant on other member states' briefings. Furthermore, the validity of multilateral agreements is only recognized when they have been passed in multiple authorized languages, wherein any discrepancies between texts take precedence.

Certain countries, such as EU member states and Switzerland, are more accustomed to engaging in multilingual activities owing to their geographic locations

and policies. Nevertheless, globalization has expanded the sphere of activities requiring linguistic concern to a considerable degree. More countries and private entities currently participate in international affairs and matters than in the past, yet not always in the languages they are most fluent in. As the impact of linguistic discrepancies becomes increasingly recognizable, unresolved or fragile political relationships may be further strained, harming international security and cooperation. A historical overview is included for purpose of illustration and a follow-up analysis, surveying past and current case law.

Types of Language Requirements

The compliance of language requirements stipulated in international law is a vital aspect of concluding and implementing international agreements. Neglecting compliance with language requirements has consequences for the validity and enforceability of international law acts. This is best illustrated by the fact that drafting and negotiation of such acts and their publication involve a variety of formal and material language issues. However, international practice shows that language requirements in international law are frequently overlooked in legal practice (Goddard, 2009). On the one hand, many accidents, if not failures, occur during the conclusion of international agreements when parties have different understandings and expectations about language requirements. On the other hand, language requirements are often idiosyncratically understood and applied by states, international organizations, and experts, not only because of their complexity and diversity, but also because of a lack of appropriate instruments that might make it possible to learn, search, and assess language requirements easily, speedily, and assuredly. Presumably such is the potential value of the present draft of a structured and general framework of language requirements in international law with the perspective of its AI and legal linguistics-based operationalization.

Challenges in Compliance

An aching lot of law has been learnt by those who want to do business in foreign climes, but its language is another matter. A lay person might learn *qiàn-shù* (beautiful trees) and can grow familiar with *shù* (trees) of watchful revolution, keep records, control pharmacist's measurements, aid promotion, act lest monopoly and pagan dampness excite them for too long. But *kultura prawna* is not *sólo lawa* or even *jus*. Take the European Commission. The original six languages in which the Community regulations were drafted presently number eleven. There are almost 23 different linguistic versions of EC legislation. Beginning on New Year's Day 2007, they will increase by two each year for the next three years. In 2010, the Community legislative library will contain 23 linguistic versions of some 25 acts. Furthermore *Sammenwirken der für die Rechtsvorschriften zuständigen nationalen Behörden* may take a deal of translating into any language. Increasingly, if force is to be negotiated between nations, native speakers of English as a matter of everyday practice it needs to be done by (Goddard, 2009). Treaties

merrily make free to allow *Änderungen* to them and *da dornaighí*, a *bprionsail agus a nead*. Whole Catholic jurists the universities or territories in which they have *Lander* under their constitution. Laws, if apparently proved, were annulled when they had their *nautes tertial*. Now as to changes: they were, and have never frontended, contiguous or disturbed. So to speak, may it please the court. EU or no EU, we shall find our vocation tongue-dappled court. Applying three profitable jurisdictions never *chancéd*.

It allows that the adaptations of the law to choice of effectives in the currents of the absorbed successions have accorded premiums in our deliberation. First, it is not with the nuptial entirety of its cryptogamous odeance that the law-language grows regular and complicated. Lord Justice Peter Gibson, speaking before the Bar Council on 9 June 2009, sprayed on the significance of common law judges taking account of practice in other legal systems to decide international litigation, especially concerning contract and commercial transactions. A week later, Lord Phillips' recent visit to Saudi Arabia fuelled discussion concerning the law and rules of legal translation and interpreting in English language arbitration in international trade contexts by way of displaying arbitration practices with a comparative perspective. Taking the means to such advocacy aims as the above and beyond, the legal systems governing such matters might also be called into consideration as far as possible, as legal diversity can create entangled controversies.

IV. AI APPLICATIONS IN LEGAL LINGUISTICS

Given the semantic ambiguity in legal language, fulfilling the language requirements in international law can be rather daunting. The capability to process, translate, and interpret legal language plays a pivotal role in legal practices, which involves the complex interaction of different legal systems with distinct codes. Emerging artificial intelligence (AI) technologies, as well as the concurring massive language models (MLMs) contribute significantly to this field. For the combination of AI and legal linguistics so as to render a profound comprehension of the legal language, it is necessary to demonstrate the state of the art applications of the AI technologies in legal linguistics. Moreover, the effects of the AI applications on current law practices are also discussed along with potential challenges that might arise in the near future (Lai et al., 2023).

AI technologies can greatly extend the human ability to extensively address multilingual legal texts. Whereas the legal text complexities are the wicked problem when it comes to handling multilingual legal texts given the diversifications across traditions and systems. The capability of AI-driven tools to process and generate the high-quality formulation of multilingual complex texts fulfills the legal professionals' requirements for the "legal content and language usage precision." Meanwhile, it has been well understood that the abolishment of the linguistic barriers consequently advances the legal practices. By focusing on the different venues and orientations of the AI applications, the legal practitioners as well as legal linguists are endeavoring to facilitate the

efficiency and efficacy of such compliance processes which otherwise would be rather labor-intensive. A panoramic view of the current utilization and implications of the AI technologies in legal linguistics is hereby provided, pointing beyond the interdisciplinary perspective to observe the imminent transformation of the legal field.

Machine Translation

The development and widespread use of AI applications open new grounds for ensuring compliance with language requirements set forth in international law. A human-centered approach to AI application might tackle language barriers in the legal domain, thus facilitating an equal access to all actors involved in the international legal processes - an aspect that goes far beyond compliance with documentary language requirements (Goltz et al., 2018). In meeting the requirement set forth in the Charter of the United Nations, official texts in many legal systems are often as authentic only in authorized translations. Considering the overall status of non-documentary language requirements in general international law, the increasing recourse to reservations as to the form of expression may cast well-founded doubts on the effectiveness of such texts in bridging the language gap via legal translation services. Thus, the same text is deposited in, for example, the UN Secretariat in a myriad of its authentic versions, and shall be equally considered authentic by all Parties. Machine translation (MT) has since long been developed that aims at tackling the language gap through means never foreseen by these framers of international law. An early objection arises from the requirement of the accuracy in interpretation provided for in the Vienna Convention on the Law of Treaties; pointing out there is no MT system capable of rendering a translation faithful in all aspects. Those in favor of MT accuracy advance its recent leaps ahead in context awareness and point-awareness, highlighting the effectiveness of the tool in current examples of processing multilingual legal texts; proofreading of important and sizeable legal studies that are not in the user's first language or, for this reason, are just scarcely included in the ongoing research items. Yet, a thorough due diligence would show that translation tools are very much limited by the inadequacy in integrity of the data along with the intricacy in multilingual legal arrangements, both at cross-system and cross-language points of views. Moreover, although law is (still) a strictly human matter, it is not difficult to envisage a plaintiff suing a defendant on the ground that the unfavorable judgment itself was due to the adverse party's ineffective legal-AI defence strategy, hence, in a sort of legal-Jurassic Park error. Overall, while it cannot be overlooked that MT, AI-aided translations, and legal information retrieval techniques are essential in legal communication, research of due legal diligence reveals language requirements to be disclosed as an interrelated practice/procedure, where AI and legal linguistics are to provide supplementary (and anyway not ever complete) solutions. Table I shows machine translation in legal context

TABLE I MACHINE TRANSLATION IN LEGAL CONTEXT

Aspects	Description	Challenges
Legal Translation Requirement	Official translations in international law must be accurate and authentic.	Multiple authentic versions; requirement of absolute accuracy.
Role of Machine Translation	Automates multilingual legal document translation.	Lack of full contextual understanding, especially in legal settings.
Vienna Convention Compliance	Interpretation accuracy is mandated for international treaties.	MT systems struggle with nuanced and exact translations.
Recent Advances in MT	Improved context and point-awareness through AI and deep learning.	Still insufficient for handling complex legal texts without human intervention.
Practical Applications	Proofreading large multilingual legal studies and documentation.	Limited by data integrity and multilingual legal intricacies.
Risks in Legal Use	Helps accelerate legal information retrieval.	Errors may cause adverse judgments or legal misinterpretation.
Future Perspectives	Supplementary tool for legal professionals and translators.	Cannot fully replace human legal expertise and due diligence.

V. FUTURE DIRECTIONS AND IMPLICATIONS

The current paper and panel reflect on the potential joint future of AI and legal linguistics for enabling the compliance of language-related requirements in legal texts within the broad realm of international law. Language compliance in contracts and other legal documents is known to be a critical challenge in the legal domain because legal languages are characterized by a particularly wide range of highly context-dependent linguistic expressions and norms. The latter are made even more complex in international law as multiple domestic legal systems from various countries are involved. Furthermore, weighty legal ambiguities and differences in legal understanding on specific issues may occur, thereby increasing the likelihood of misunderstanding on contract terms and/or negotiation proposals with a non-negligible risk of potential legal conflicts.

Language compliance may be sought to be ensured by resorting to the longitudinal or parallel analysis of legal texts in different languages to verify their translational equivalence and compliance of translations with respect to the originals. Despite the afore considerations, this is known to be a highly expensive and time-intensive task for legal practitioners, who are often not multilingual experts of the relevant legal systems involved. (Pistilli et al., 2023).

Moreover, the joint internationalization and digitalization of markets in the recent years have commenced an unstoppable process of fast increase of interlingual legal communication

far less manageable for legal professionals without the help of proper computational tools. This suggests that wider availability of AI tools, including legal machine translation systems and comparable tools, is on the rise in order to provide legal practitioners with a means for enforcing compliance with legal language provisions. As different legal domains diverge in their particular language usage, it can be expected that such AI tools will evolve to handle different forms and degrees of linguistic compliance in accordance with legal texts. Nonetheless, such a requirement can evolve over time as legal languages are themselves in continuous evolution in line with the evolving course of international law. Thus, the use of sophisticated statistical AI with legal language processing tools can widen access to and influence of legal texts even across linguistic and jurisdictional barriers. Finally, developing sensible methods and systems for ensuring compliant legal language processing by AI tools in international legal contexts is arguably of utmost importance concerning the very validity, effectiveness, and peaceful enforcement of a myriad of international law obligations and regulations that the humanity complies with. Table II shows the future directions and implications.

TABLE II FUTURE DIRECTIONS AND IMPLICATIONS

Areas	Details	Implications
Language Compliance Challenges	Legal language complexity, multiple legal systems, risk of misinterpretation	Need for enhanced tools and AI support for multilingual legal analysis
AI Tools in Legal Translation	AI-based MT, legal NLP, parallel corpus analysis	Increases speed and scalability, but still lacks context and accuracy
Integration with Legal Practice	Growing reliance on AI to handle massive multilingual legal content	Supports legal practitioners, but human oversight remains vital
Evolution of Legal Language	Legal language evolves with international law dynamics	AI must adapt continuously to changes in legal language structures
Ethical Considerations	Issues of data privacy, bias, explainability, trust in AI systems	Requires regulatory frameworks to ensure fair and transparent AI usage
Regulatory Initiatives	Ongoing development of EU AI regulations and international standards	May significantly reshape AI adoption in the legal sector
Human-Centered AI	Focus on interpretability and fairness in AI-assisted legal processes	Essential for maintaining public trust and ethical responsibility

Ethical Considerations

With the increasing level of AI integration, there will be several ethical concerns. There are issues concerning data

privacy, bias, interpretability, explainability, and accountability. All this becomes more of an issue as the applications become less ‘assistive’ and more ‘determinative’ in, for example, litigation within, as well as compliance with, international law. Consequently, ethical aspects of the application as well as the design of AI technology are reflected upon. Transparency is increasingly called for among scholars to engender trust among stakeholders and ensure compliance (Larsson, 2019). In combination with GPT-3, Google has announced a search engine where the search experience is improved by AI. In order to ensure a level of trust so that these applications are used by a broader audience within the legal profession and related government institutions, AI technology working with text needs to be as interpretable as possible.

In the “Misuse Alert” part of Prosecute AI, for example, a word can be particularly predictive of an outcome. Prosecute AI will flag words within a new text that a court ‘dislikes’ in comparison to similar texts where a court has returned a positive judgement. In developing countries a high proportion of children have no birth certificate and every second 5,000th child is registered. It is noted that a negative alert falsely generated becomes a powerful signal. AI is trained on labelled outcomes, often implemented on historical data. Yet these can be, and often are, biased. A model trained on biased data might render biased predictions, disproportionately affecting certain groups. Development of a model handling text from different legal systems may introduce new confounding variables that re-attribute the prediction despite the causal role played by the language token. A biased AI algorithm cannot only endanger the neutrality of legal proceedings but also goes against the aspiration to build trust in automation. The importance of regulatory frameworks in place to ensure the implementation of ethical practices is once again underlined. At the time of writing, EU institutions are developing a plethora of regulatory frameworks that could profoundly impact the development and use of AI. Recently proposed or adopted legislations include the Proposal for a Regulation laying down harmonised rules on artificial intelligence; the Regulation on a European approach for Artificial Intelligence; the Proposal for a Regulation of the European Parliament and of the Council on the establishment of the European Cybersecurity Industrial, Technology and Research Competence Centre and the Network of National Coordination Centres; and the Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2017/352 to further improve the cooperation between national authorities responsible for the enforcement of consumer protection laws and to stem the flow of illegal products in the Union. As these legislations come into effect, the legal sector might undergo deep transformation, reshaping its traditional practices on an unprecedented scale and pace. The above illustration touches on only a few emerging issues related to legal practice. Considering the wide range of stakes, further ethical considerations on potential AI applicability in lawmaking, advocacy, court administration, and government are essential. From this

perspective, the balance of interests in the development, use, and safeguarding of sustainable and fair AI must constantly be in place. The aim here is to raise some of these concerns to stimulate a broader dialogue and a research-based response that is as broad and encompassing as the perceived issues.

VI. CONCLUSION

The integration of Artificial Intelligence in international legal communication is a paradigm shift in language needs and legal linguistics. The paper has shown that, while AI—specifically Natural Language Processing and Machine Translation technology—can improve dramatically the efficiency and accessibility of multilingual legal texts, it cannot replace human expertise entirely. Legal translation is not just a language exercise; it is a deeply cultural, contextual, and interpretive task in which meaning accuracy, legal soundness, and cross-cultural sensitivity are priorities.

Artificial intelligence systems have proven to possess a high capacity for automating document processing and assisting legal practitioners with handling volumes of multilingual legal documents. Nevertheless, problems remain in regards to handling intangible legal concepts, contextual meaning of law, and ethical problems surrounding data protection, prejudice, and responsibility. Blind reliance on AI can lead to misreading, inaccurate interpretation, and even perilous legal outcomes.

With international law evolving in a more and more polycentric and multilingual legal framework, the interconnection between legal linguistics and AI will arguably be obligatory. However, the findings of this study emphasize that AI needs to be considered as an adjunct tool rather than a replacement for professional legal translators and experts. The future of legal translation with AI lies in the combination model, where AI is an efficient helper and human experts ensure the legal, cultural, and ethical integrity of legal documents.

In the future, interdisciplinarity is needed to improve AI applications in legal linguistics, create explainable and transparent AI systems, and build strong regulatory frameworks. All these will serve to protect the fairness, accuracy, and reliability of legal communication in international law, ultimately making the global legal order more equitable and effective.

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