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## Testing neural machine translation against different levels of specialisation

### An exploratory investigation across legal genres and languages

#### *Abstract*

This paper aims to shed light on the relationship between NMT and legal translation by presenting a small-scale study that looks into the performance of NMT in highly specialised legal genres to research whether, how, and to what extent the genre and the level of specialisation of the source text, and the target language affect the quality of the raw output. The data were extracted from two sets of target texts belonging to three different genres – i. e. a power of attorney, a memorandum opinion, and a share purchase agreement – which were machine-translated from English into two target languages – i. e. Spanish and Italian. The analysis considered the acceptability of the target-language solutions selected by DeepL through a sample revision procedure based on rich points (PACTE 2009) and focused on translation errors in the attempt to find any correlations between acceptability, errors, and the genre and/or the target language under scrutiny.

## 1 NMT and legal translation: introductory remarks

There are many myths about neural machine translation (NMT) (see do Carmo 2022) as well as deep concerns about the role (specialised) translators play in the age of automation.<sup>1</sup> The scary idea of ‘human parity’, i. e. the belief that NMT can achieve the same level of quality as human translation, is still provoking heated debates about the implications of the outstanding technological advancement of the last decades for the translation profession. The alleged threats posed by the surprising results achieved by artificial intelligence in combination with the gaps in the academic literature about the way (N)MT works and influences the translation process and product have resulted in a general sense of scepticism and mistrust or, in the worst scenarios, an a priori rejection of anything produced by NMT engines, which are blamed for jeopardising a whole profession of language experts. Scholars worldwide have attempted to debunk these myths by trying to study the actual advantages and disadvantages of using NMT. For instance, do Carmo (2023) recently proposed the term “artificial translation” – rather than

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<sup>1</sup> The study was designed and conducted jointly by the two authors. Carla Quinci wrote sections 3, 4, 4.2, 5, 5.1, 5.2, and 6, and Gianluca Pontrandolfo wrote sections 1, 2, and 4.1.

“machine translation” – to stress that MT does not perform a complete translation process, which would take into account not just the meaning of the source and the target sentences but also the voice of the author, the intended readers, the purpose of the target texts, etc. Since these extratextual elements, which are crucial in any (legal) translation brief (see Scott 2019: 81–102), can only be evaluated by human translators, NMT cannot outperform human benchmarks.

These concerns are even more serious in the legal sector, where the risks related to data privacy and confidentiality issues, associated with key factors such as low risk tolerance and liability, contribute to that feeling of scepticism and mistrust. This is the reason why such a highly specialised field has generally been considered unsuitable for automation (Sánchez-Gijón/Kenny 2022: 85–86), especially due to the inherent challenges and risks implied in legal translation, which appears too complex and sensitive to be carried out by a machine.

While other fields of knowledge and types of specialised translation tend towards conceptual universality and univocity, legal notions and procedures are largely system-bound and historically rooted, which naturally reflects on their individual legal languages and culture-bound legal references. This results in incongruities and asymmetries, which represent the typical challenges faced by legal translators. Specifically,

one of the distinctive features of this specialisation is the high variability of the texts and legal conditions that determine the role of translation itself in each communicative situation, i. e. its communicative priorities between or within legal systems, according to the conventions of specific branches of law and legal genres at the national and international levels.

(Prieto Ramos 2022)

As underlined also by Scott (2019: 31–55), legal translation involves negotiating not only between legal languages/discourses but also – and most importantly – between legal systems and legal genres, which makes this type of translation particularly demanding.

However, despite legal conceptual asymmetries and ethical concerns, the evolution of MT engines and the increasing quality of their outputs are changing the legal professional landscape, where the ‘triangle of MT’ (quality, price and speed) still plays a pivotal role. Legal translation service providers as well as law firms are increasingly betting on artificial intelligence and NMT worldwide. For instance, the Swiss language service provider *Hieronymus – Translations by Lawyers for Lawyers* developed two NMT-based solutions for their clients. The first one, *Lex-machina* (s. a.), is specifically designed to meet the diverse range of Swiss lawyers’ translation needs, “from gisting to fully-reviewed and certified legal translations”, while the other, *Neur.on* (s. a.), is an artificial intelligence-powered technology aimed to address the specific translation challenges faced by legal, tax and banking professionals. Another example is the famous multinational *Lionbridge* (s. a.) explicitly recognising that legal MT is shaping the future of multilingual legal cases, helping firms to save time and money and improve efficiency in global legal cases. A final interesting point is made by TAUS (2018) on user-friendly legal contract translation. According to the 2018 TAUS report, machine learning techniques will be increasingly applied in the legal profession to make business contracts

more readable for non-specialists and less lawyer-centric, while maintaining their legal rigour. For legal translators involved in contract law, artificial intelligence will likely have a steady influence on the language used by bringing about the “vernacularisation of discourse”, which in the case of legal information is considered a democratic duty (TAUS 2018).

As a matter of fact, NMT is being used in the legal sector and it is not surprising that the most recent version of the Competence Framework developed by the European Master’s in Translation (EMT) “acknowledges that [it] represents a growing part of translation workflows, and that MT literacy and awareness of MT’s possibilities and limitations is an integral part of professional translation competence” (EMT Expert Group 2022: 7). As Quinci (forthcoming) rightly points out, then, the question is not so much *if* MT and PE should be implemented in legal translator training – and practice – but *when*, and how they are being used by professional translators.

Against this background, this investigation aims to shed light on the relationship between NMT and legal translation by means of a small-scale study that looks into the performance of NMT in highly specialised legal genres. After reviewing the main studies already conducted on the implementation of MT in the legal field (2), the paper outlines the rationale for the research, its main objectives and potential (3), and eventually describes the research design (4) by focusing on the STs selected for the investigation (4.1) and the methods and tools used for data extraction and analysis (4.2). Finally, it provides a thorough examination of the data concerning acceptability (5.1) and errors (5.2) to highlight any correlations between these variables and the genre and/or the target language at hand. The main findings are then summarised in the conclusions (6), which also suggest some potential avenues for future research.

## **2 Previous studies on NMT in the legal field**

The reliability and accuracy of NMT have been investigated with reference to a variety of issues, e. g. the users’ trust in the outputs (Scansani 2020), the different approaches to post-editing (Koponen et al. 2021; O’Brien 2022), the qualitative analysis of the output (Guerberof 2017) also from the end user’s perspective (Screen 2019), the different types of MT engines employed (Castilho et al. 2017; Diab 2021), the advantages of NMT over from-scratch translation (Daems et al. 2017; Jia et al. 2019; Nitzke 2019), and the implications of NMT for translation/post-editing training purposes (Moorkens 2018; Stasimioti/Sosoni 2019; Roiss 2021). However, the suitability of NMT for the translation of different text genres (Calude 2003) is still questioned as its quality still appears unsatisfactory for specific levels of specialisation.

In legal translation – a highly specialised field where NMT and PE are increasingly used due to “the steady increase in the need to translate legal texts under tight deadlines and subject to budget constraints” (Vigier-Moreno/Pérez-Macías 2022: 86) – the correlation between the performance of NMT and the overall quality of the raw output for PE purposes in specific genres has scarcely been investigated.

As rightly pointed out by Wiesmann (2019: 126–127), the very first studies applying MT to legal texts were carried out by Yates (2006), Killman (2014) and Şahin and Dungan (2014). Yet, none of the three studies relied on NMT at that time. Yates (2006) tested *Babel Fish*, a free Web-based application using a rule-based engine, for translating excerpts of the Mexican and German Civil Codes for law librarians and law library users. Predictably, the results she obtained were insufficient. Killman (2014) tested the accuracy of *Google Translate*, which at that time was a statistical system, in translating a large sample of legal vocabulary items from a collection of judgment summaries produced by the Supreme Court of Spain. His results showed that the English output was accurate from a terminological and phraseological perspective in slightly over 64% of the cases and that the MT system performed consistently well in the translation of legal vocabulary. Finally, Şahin and Dungan (2014) explored the students' use of time, performance, and reaction when translating technical, literary, media, and legal texts from English into Turkish by using either printed or online resources only, or when post-editing target texts produced by *Google Translate*. They concluded that students were not very comfortable with post-editing MT outputs of legal documents, which they considered the most difficult type of texts.

A fourth study relevant to our investigation is the one by Sycz-Opoń (2016), which tested the performance of two statistical MT tools (*Google MT* and *Microsoft MT*) with different types of agreements translated from English into Polish. She concluded that

MT performance differs depending on a genre. Each genre is characterised by many distinct features, e. g., syntactic structure, specific phraseology, lexis, text density, or degree of repeatability. All of these features have an impact on MT performance. The genres characterised by simplified syntax, predictable terminology and a high rate of repetitions are more MT-friendly. On the contrary, genres with long, complex sentences and varied vocabulary are hardly machine-translatable. (Sycz-Opoń 2016: 83)

The evaluation performed within her study by four professional translators revealed promising results: in general, MT tools exhibit a good recognition of the genre and the raw outputs produced in the experiment were recognisable as legal texts, despite some inevitable errors, e. g. imprecision, stylistic awkwardness or even serious factual mistakes.

One of the first studies which employed NMT for legal texts was carried out by Heiss and Soffritti (2018) and aimed to test the effects of the availability of *DeepL* on the teaching of specialised and non-specialised translation from L1 (Italian) into L2 (German). The results demonstrated that the quality of *DeepL*'s raw output in combination with the successive post-editing led to quite promising outcomes.

This paper was followed by other two important studies conducted by Mileto (2019) and Wiesmann (2019). Mileto (2019) aimed to evaluate if and to what extent human translation quality is improved when translating legal texts by integrating an MT system in a CAT tool. To this end, she carried out an error analysis of *DGT MT*, *Google MT* and *SDL Language Cloud MT* outputs in students' translations of legal texts from Italian into English. The results of her study revealed that the use of MT associated with termbases

and translation memories led to a reduction in translation times without diminishing the quality of the final target text.

Wiesmann's (2019) objective was to discover to what extent MT was capable of translating legal texts – or at least certain types of legal texts – by producing outputs requiring only limited post-editing effort, and, consequently, whether a targeted use in translation pedagogy could be considered. Her initial assumption was that the development of MT in this regard had not progressed far enough to translate legal texts (Wiesmann 2019: 122). She tested *DeepL* vs *MateCat* on the Italian-to-German translation of six different genres belonging to the legislative area (i. e. an excerpt of law, 96.1% level of difficulty), the legal practice (i. e. a power of attorney, 83.0%; a notarial real estate sale contract, 83.3%; a statement of claim, 69.9%; a civil court judgment, 81.4%), and the legal theory (i. e. a legal essay, 99.5%). She systematised the errors and evaluated the translation results according to two criteria: the comprehensibility and meaningfulness of the target text, and the correspondence between ST and TT. Her results differ from the previous study in that she found that the correspondence between ST and TT was fundamentally worse as compared to the meaningfulness of the target text. The NMT output was thus insufficient to ensure post-editing of machine-translated legal texts a bigger place in translation pedagogy.

Another interesting and relevant study is Briva-Iglesias's (2021), which aimed to explore how NMT could be implemented in legal translator training and which skills need to be enhanced by using NMT in the classroom. Using TAUS's Dynamic Quality Framework, he assessed three human translations of company contracts translated from English into Spanish by 4th-year students vs the NMT output produced by *DeepL*. His contrastive analysis revealed that 50% of the errors in both human and NMT translation were related to lexical accuracy (Briva-Iglesias 2021: 586) due to misunderstanding of specialised legal concepts and omissions, incorrect interpretations, and ambiguous renderings of the ST. Interestingly, NMT performed better with terminology, whereas human translators performed better with terminology consistency, expectedly so. As far as the syntax of the target language is concerned, the NMT produced literal translations but performed better in 'interpreting' the deep semantic and syntactic structure of complex sentences, e. g. the multiple embedded clauses typical of legal language or complex sequences of tenses. Globally, Briva-Iglesias found that NMT does generate errors that need to be revised/post-edited by human translators but quickly provides a first draft which is qualitatively superior to students' translations. Hence, it can be a useful starting point to enhance the professional productivity of translators.

More recently, the Spanish journal *Revista de Llengua i Dret* devoted a Special Issue (78/2022) edited by Killman and Mellinger (2022) to the relationship between technology and legal translation and interpreting. Among the different papers, the study by Vigier-Moreno and Pérez-Macías (2022) is fully in line with the present research as it assesses the quality of the English outputs of a Spanish remand order produced by three NMT systems (*DeepL*, *eTranslation*, and *Google Translate*) by using TAUS's evaluation guidelines. Regardless of the NMT system, they found considerably more errors concerning

terminology and accuracy than fluency and style, with terminological errors being the most numerous, as in Briva-Iglesias (2021). Interestingly, the results expose not only the shortcomings of using NMT but also its advantages in terms of fluency. The machine-generated translations analysed in their study presented adequate solutions, thus becoming useful references for translating legal texts into a language other than one's L1.

Finally, it is worth mentioning the ongoing LeMaTTT (Legal Machine Translation in Translator Training) research project designed by Quinci (2022), a simulated longitudinal empirical study exploring the potential impact of MT on the translation processes and products of legal translation trainees.<sup>2</sup>

This brief overview of the studies conducted in the legal field confirms the progress made by NMT in the legal field over the last two decades, in line with the “groundbreaking developments in data-driven approaches beginning in the 2000s” (Killman/Mellinger 2022: 2).

### **3 Research objectives and potential of the study**

Despite the existing need for human intervention, the overall quality of NMT in the legal field (e. g. Mileto 2019; Martínez Domínguez et al. 2020; Briva-Iglesias 2021) suggests that MTPE will be increasingly implemented also by legal translators. Still, legal texts subsume a vast array of genres, each exhibiting specific features, which cannot be assumed to be equally suited for NMT.

On the ground of these considerations, the ultimate objective of this study is to test the performance of NMT on highly specialised legal genres to investigate whether, how and the extent to which the genre and the level of specialisation of the ST, and the target language (TL) affect the quality of the raw output. Being output-driven, the investigation does not aim to verify pre-determined hypotheses; rather, it seeks to explore the types of challenges that different legal genres pose to NMT and measure their impact in quantitative terms.

Specifically, the research questions (RQs) underlying the investigation are the following:

- (1) Does the acceptability of NMT raw output vary with the genre and the supposed level of difficulty of a legal ST?
- (2) Do different genres pose specific translation problems to NMT? If so, are these genre-specific features connected with the acceptability of the raw output and/or the types of errors generated by NMT?
- (3) Are the results concerning (1) and (2) language-dependent? Or do they equally apply to different TLs?

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<sup>2</sup> At the time of writing, some preliminary results of this investigation are in the process of peer-reviewing for an upcoming publication.

By addressing the aforesaid RQs, the investigation is deemed to assess the suitability of NMT for translating specific legal genres and provide evidence about the main pitfalls that are to be expected depending on the genre or TL at hand. This could (a) assist legal translators in determining whether NMT can successfully be implemented in specific assignments, and (b) provide a sort of genre-specific ‘watch list’ including the main (types of) items or features that proved prone to cause inaccuracies, thus guiding and optimising the post-editing process.

## 4 Research design

Achieving the objectives set out for the study required a specific research design, involving different target languages and legal genres. The language combinations were naturally chosen based on the researchers’ language competence, but also take account of the actual market demand and the opposition between common-law and civil-law legal systems. English was thus chosen as the source language and Spanish and Italian as the target languages. Therefore, the study indirectly exploits the asymmetries between common-law and civil-law countries to explore the way NMT tackles any systemic asymmetries. In this case, the presence of two different target languages permits testing the applicability of the results to more than one language combination, but also to determine the impact of shifting from one legal family to the other vs shifting from one language to the other. This can be tested by considering any parallelism in the type and acceptability of the target-text solutions implemented by the NMT engine. If the same errors were found in both target languages, translation problems should be due more to the asymmetries between the legal systems than to language ones; conversely, were the same errors found in one target language but not the other, then it would be language asymmetries that represent the greatest challenge for NMT.

In the attempt to reproduce a real-life professional scenario, three legal genres were selected that (a) are most likely to be translated in the professional practice, (b) can pose equivalence problems between the source and the target languages/legal systems under consideration, and (c) display heterogenous stylistic features and levels of difficulty. These requisites led to the selection of three specific genres, which differ in terms of function, topic, length, textual and syntactic structure, i. e. the power of attorney (PoA, 531 words), the memorandum opinion (MemOp, 2,559 words), and the share purchase agreement (SPA, 8,830 words) (cf. 4.1 for further details). These genres were considered as being increasingly difficult from a translational perspective based on the existence or absence of a comparable genre in the target language, the consequent (un)availability of parallel texts for NMT to rely on, and the number and nature of the challenges posed by their lexical and syntactic features. Once selected, the full STs were machine-translated into both Spanish and Italian by DeepL (s. a.). Six target texts (TTs), three per TL, were thus produced and analysed.

Considering the significant length of both the MemOp and the SPA, full-text revision appeared as impracticable, especially since it would have considerably lengthened the

joint analysis of translation errors by the two researchers and possibly affected error detection and labelling due to the variety and number of items to be pondered. Sample revision based on PACTE's (2009) method was thus preferred to assess and compare the quality of the raw outputs, as not only does it speed up the revision process but also provides clear criteria for selecting the items to be assessed and determining their acceptability. The ST items, or rich points (cf. PACTE 2009), to be assessed were selected and labelled depending on the type of challenge they were deemed to represent in the translation process. Finally, the error typology developed by Pontrandolfo (2016) was implemented for determining the nature of and labelling the partially or non-acceptable solutions found in the TTs. This methodology (cf. 4.2) allowed the researchers to focus on a set of predetermined ST items which were considered key in the respective genres and assess their level of acceptability while ensuring interlanguage comparability, in both quantitative and qualitative terms.

#### **4.1 Materials: the source texts**

According to Bhatia's (2006: 6–7) classification of legal genres based on their communicative purpose, the PoA and the SPA belong to the so-called "target genres" (e. g. contracts, affidavits, insurance documents) – or "private legal texts" in Cao's words (2007: 9–10) – whereas the MemOp belongs to secondary genres (judgments) – or "judicial texts" following Cao. From a market-based perspective, these texts belong to the "corporate" (SPA), the "court" (MemOp) and "notarial" (PoA) worlds and are among the most frequently translated legal genres (Scott 2019: 47).

To briefly describe the main features of these genres, the translation-oriented framework proposed by Soriano Barabino (2020: 290) for the analysis of the ST will be adopted. This model is particularly suitable for legal source-text analysis as it places the communicative situation and the translation brief at the core from which three fundamental dimensions develop: cultural (legal), textual and linguistic (Soriano Barabino 2020: 285). However, since the translation outputs under scrutiny were machine-translated, no translation briefs were produced for the tasks.

The first text chosen for the analysis is an *appointment of attorney* (Table 1) belonging to the US legal system. Precisely, it is a power of attorney through which the principal exercises their "power to designate the beneficiary of an insurance policy or other contractual arrangement".<sup>3</sup> In the specific text selected for the analysis,<sup>4</sup> a licensed insurer can appoint the Minnesota Commissioner of Commerce as their attorney. From a textual point of view, it is a short, highly standardised genre characterised by various routine formulae easily recognisable as legalese. From a conceptual point of view, despite the inevitable cultural differences between common-law and civil-law legal systems, the text does not pose equivalence problems when transposing the concepts

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<sup>3</sup> Minnesota Statutes (1994).

<sup>4</sup> The document was downloaded from the public repository of the U.S. Security and Exchange Commission (sec.gov), but at the time of writing the document is no longer available.



into Italian and Spanish. Moreover, many comparable Italian and Spanish texts can easily be retrieved online which may serve as useful references to solve potential problems.

APPOINTMENT OF ATTORNEY (PoA)		
<i>Communicative situation</i>		
Producer: the principal and the notarial officer		
Receiver: the Minnesota Commissioner of Commerce, and any other stakeholders		
Function: to appoint an attorney to transact business in the State of Minnesota		
<i>Cultural dimension</i>	<i>Textual dimension</i>	<i>Linguistic dimension</i>
Legal family: <ul style="list-style-type: none"> <li>• Common law</li> </ul> Legal system: <ul style="list-style-type: none"> <li>• United States of America (Minnesota)</li> </ul> Branch of law: <ul style="list-style-type: none"> <li>• Commercial law</li> <li>• Private law</li> <li>• Substantive law</li> </ul>	Text category: <ul style="list-style-type: none"> <li>• Public document (issued or authorised by a certifying officer)</li> </ul> Text genre: <ul style="list-style-type: none"> <li>• Power of attorney</li> </ul>	Level of specialisation: <ul style="list-style-type: none"> <li>• Discourse: legalese</li> <li>• Terminology: abundance of specialised terms</li> </ul> Legal language: <ul style="list-style-type: none"> <li>• Notarial</li> </ul>

Table 1: PoA analysis based on Soriano Barabino’s model

The second text is a *memorandum opinion* (Table 2). According to the Black’s Law Dictionary, it is “a unanimous appellate opinion that succinctly states the decision of the court; an opinion that briefly reports the court’s conclusion, usually without elaboration because the decision follows a well-established legal principle or does not relate to any point of law” (Black’s Law Dictionary 2009: 1201). The specific text selected for the analysis (Cohen-Sagi v. Profinance decided on Mar 4, 2009, Court of Appeals of Texas, Fourth District, San Antonio)<sup>5</sup> is a contract dispute between two private citizens owning two security companies and the company ProFinance Associates, Inc. They appeal the trial court’s judgment in favour of ProFinance Associates, Inc. and its president, Michael B. Jones. The Court of Appeals reversed the judgment of the trial court and rendered judgment that ProFinance and Jones take nothing against Cohen-Sagi and Goldberg, thus remanding the case to the trial court for the calculation of the attorney’s fees. From a textual point of view, the text is structured into two main moves (background and discussion) and is rooted in the common-law tradition, thus resulting in a complex genre from a terminological, morphosyntactic, phraseological and textual perspective. The judicial style is convoluted, and the terminology used straddles two fields: the legal and the financial areas. Parallel texts in Italian and Spanish are not abundant since the text belongs to the US legal practice tradition. Appeal judgments dealing with financial issues

<sup>5</sup> Cohen-Sagi v. Profincance (2009).

may be used as parallel texts although the genre itself and its content are not fully comparable.

MEMORANDUM OPINION (MemOp)		
<i>Communicative situation</i>		
Producer: Phylis J. Speedlin, Justice of the Court of Appeals of Texas's Fourth Districts		
Receiver: Trial Court, the parties, and any other stakeholder involved in the case		
Function: to reverse the judgment of the trial court		
<i>Cultural dimension</i>	<i>Textual dimension</i>	<i>Linguistic dimension</i>
Legal family: <ul style="list-style-type: none"> <li>• Common law</li> </ul> Legal system: <ul style="list-style-type: none"> <li>• United States of America (Texas)</li> </ul> Branch of law: <ul style="list-style-type: none"> <li>• Commercial law</li> <li>• Private law</li> <li>• Procedural law</li> </ul>	Text category: <ul style="list-style-type: none"> <li>• Judicial document</li> </ul> Text genre: <ul style="list-style-type: none"> <li>• Judgment</li> </ul>	Level of specialisation: <ul style="list-style-type: none"> <li>• Discourse: legalese</li> <li>• Terminology: abundance of specialised terms</li> </ul> Legal language: <ul style="list-style-type: none"> <li>• Judicial</li> </ul>

Table 2: MemOp analysis based on Soriano Barabino's model

The third and last text is a *share purchase agreement* (Table 3), which is a highly complex legal genre characterised by a high level of cultural asymmetries and anisomorphism in addition to the typical features of legal texts – mixed with financial terminology. The SPA is typically entered into by and between a buyer and one or more seller(s) of a target company's shares whereby the seller(s) agree(s) to sell a specific number of shares to the buyer for a specified price.<sup>6</sup> The SPA is a hybrid text (see De Nova 2021), i. e. an agreement conceived according to Anglo-American/common law categories but then applied according to civil-law criteria. No parallel texts are available in Italian and Spanish since the contract is generally written in English (usually from ad-hoc templates), even though the parties are not based in the US. The specific text selected for the analysis<sup>7</sup> is an agreement between a German and an Indian company. The long text contains a list of prototypical clauses clearly defining its superstructure, which encompasses six sections – i. e. I. Purchase and Sale of Shares, II. Payments, Costs and Taxes, III. Representations, IV. Remedies, V. Confidentiality, VI. Miscellaneous – each including different clauses.

<sup>6</sup> Cf. Anatomy (2020).

<sup>7</sup> Evotec (2009).

SHARE PURCHASE AGREEMENT (SPA)		
<i>Communicative situation</i>		
Producer: a legal expert on behalf of the two parties		
Receiver: the Purchaser (Evotec AG, Hamburg, Germany), the Seller (DIL Limited, Thane, India), the Company (Research Support International Private Limited, Thane, India), any other parties interested in the agreement		
Function: the Purchaser wishes to purchase the Target Shares from the Seller against payment of the Purchase Price and on and subject to the other terms and conditions specified in the Agreement		
<i>Cultural dimension</i>	<i>Textual dimension</i>	<i>Linguistic dimension</i>
Legal family: <ul style="list-style-type: none"> <li>• Common law and Civil law (hybrid)</li> </ul> Legal system: <ul style="list-style-type: none"> <li>• India</li> </ul> Branch of law: <ul style="list-style-type: none"> <li>• Commercial law</li> <li>• Private law</li> <li>• Substantive law</li> </ul>	Text category: <ul style="list-style-type: none"> <li>• Private document</li> </ul> Text genre: <ul style="list-style-type: none"> <li>• Contract</li> </ul>	Level of specialisation: <ul style="list-style-type: none"> <li>• Discourse: legalese</li> <li>• Terminology: abundance of specialised terms</li> </ul> Legal language: <ul style="list-style-type: none"> <li>• Used in private documents</li> </ul>

Table 3: SPA analysis based on Soriano Barabino’s model

The three texts are deemed to display an increasing level of difficulty, ranging from the most standardised genre (with parallel texts in Italian and Spanish) to the most hybrid text, which does not have any functional equivalent texts in the two target legal systems. Each of them contains a significant percentage of translation problems (cf. 4.2 and Appendix 1). From a methodological point of view, it is worth stressing that no considerations will be made here regarding the translation techniques that can be adopted to solve those translation problems (see Pontrandolfo 2019 for an overview) since the focus of the article lies in the translation product (i. e. NMT raw output) and does not involve considerations about its revision/post-editing.

## 4.2 Methods

As anticipated in 4, the analysis of the Spanish and Italian outputs relied on PACTE’s (2009) empirically validated sample assessment method for selecting and determining the acceptability of individual rich points (RPs), and ultimately the overall acceptability of each raw output. Based on this method, a number of RPs as proportional as possible to the overall length of the ST in words were selected which were deemed to be “translation problems representative of those commonly found when translating” (PACTE 2009: 213) the corresponding genres.

As shown in Figure 1, the number and type of RPs vary with the genre at hand, with the shortest ST (i. e. the PoA) including 13 RPs, and the medium-length and longest texts (i. e. the MemOp and the SPA) including 27 and 61 RPs, respectively.<sup>8</sup> Despite the researchers' best efforts at balancing the number of RPs per type across the three texts, the distribution of RPs necessarily mirrors the different functions, contents, and genre conventions of the text types selected for the analysis. Given the high level of specialisation of the STs, special-language (LSP) instances were prioritised, which explains the prevalence of terminological (TERM) and phraseological (PHRAS) units. Still, system-bound (i. e. typical of specific national legal systems, LECULT) and lexical (i. e. non-specialised, LEX) items were also selected, thus ensuring variety in the types of potential translation problems. For this very reason, LSP terms were further distinguished as TERM\_leg and TERM\_fin to account for the massive presence of economic and financial notions in the SPA, which represents one of the main features of this genre.

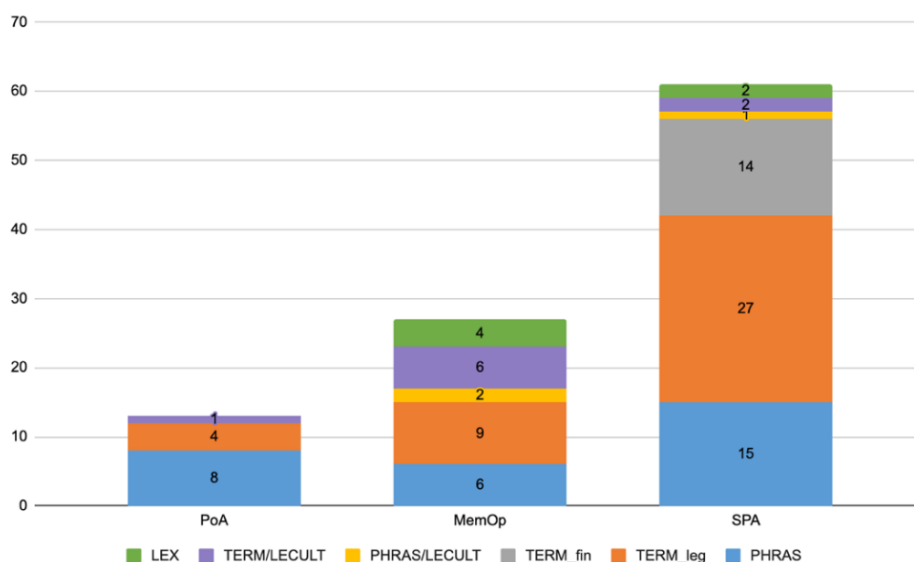


Figure 1: Distribution of the RPs in each ST per type

As signalled in Appendix 1, some RPs were repeated – also in their inflected forms – multiple times in the ST. For the purposes of the analysis, all the instances of a given RP were examined so that any inconsistencies in the equivalents used throughout the TT could emerge and be assessed.

Following PACTE's method, the Spanish and Italian equivalents proposed for each RP were classified as acceptable (A), partially acceptable (PA) or non-acceptable (NA). This procedure was first carried out by the two researchers individually and followed by

<sup>8</sup> See Appendix 1 for the full list of RPs selected in each ST.

a joint revision to harmonise error labelling in both TLs. The TT items were then assigned a score of 0, 1.5 or 3 depending on their level of acceptability to obtain an overall acceptability index (AI) for each text, based on the following formula.

$$AI = \frac{(no. of acceptable solutions * 3) + (no. of partially acceptable solutions * 0.5)}{no. of total RPs}$$

Translation errors, i. e. PA and NA solutions, were also labelled by drawing on Pontrandolfo's (2016: 329–330) error typology, which draws on Hurtado Albir's (1999: 120) and Mossop's (2019), over which it was preferred here for it was developed in the framework and for the purpose of legal translation. In line with Mossop, Pontrandolfo identifies four main categories of errors, i. e. those concerning accuracy, content, language and presentation, which subsume the following error types:

- (1) Inaccuracy (INAC), which refers to the incorrect transfer of the ST meaning;
- (2) Distortion of meaning (DM), i. e. the incorrect transfer of a shade of the ST meaning, e. g. over- or under-translation or the introduction of ambiguity (cf. Hurtado Albir 2001: 305);
- (3) Inaccurate cultural equivalence (CULT), which refers to the selection of a wrong target-culture equivalent, i. e. one that cannot be considered the counterpart of the culture-specific reference in the ST;
- (4) Inaccurate equivalence between legal systems (LECULT), i. e. a conceptual error due to a reference to a target-culture legal notion which cannot be considered the counterpart of the one in the ST;
- (5) Addition (ADD), which concerns the introduction of new relevant information in the TT;
- (6) Omission (OM), which refers to any relevant information present in the ST but not in the TT;
- (7) Contradiction (CONTR), i. e. any information which contradicts previous or following information in the text;
- (8) Nonsense (NS), which refers to any illogic information in the TT;
- (9) Terminology (TERM), i. e. the presence of inaccurate terminology that cannot be detected without accessing the ST (TERMST) or that, though incorrect, remains detectable by the reader in the TT (TERMTT), e. g. in cases where it causes logic or factual issues;
- (10) Facts (FACT), i. e. errors concerning the factual truth of the TT;
- (11) Tailoring (TAIL), which refers to errors affecting the TT tone (TAIL>TO), register (TAIL>REG), language variant (TAIL>LV), and idiolect (TAIL>ID);
- (12) Lexicon (LEX), i. e. errors affecting general-language vocabulary;
- (13) Syntax (SYNT), i. e. errors affecting the TT syntactic structure;

- (14) Smoothness (SMOOTH), which refers to errors concerning coherence (SMOOTH>COHER), cohesion (SMOOTH>COHES), thematic progression (SMOOTH>TP), referencing (SMOOTH>REF), and linkers (SMOOTH>LINK);
- (15) Calques (CAL), which can affect spelling (CAL>SPEL), lexicon (CAL>LEX), morphosyntax (CAL>MORPH), word order (CAL>WO), clause order (CAL>CO), linkers (CAL>LINK), referencing (CAL>REF), or cultural references (CAL>CULT);
- (16) Genre conventions (CONV), i. e. any incompliance with terminological (CONVTERM), phraseological or textual (CONVPHRAS/TEXT) conventions typical of the target culture;
- (17) Phraseology (PHRAS), which refers to errors concerning incorrect LPS phrases;
- (18) Spelling (SPEL), which concerns any orthographic, punctuation and mechanical errors;
- (19) Grammar (GR), which refers to any incorrect application of the target-language grammar rules,
- (20) Typography, e. g. any errors concerning font type and size, the use of bold, italics, and the like;
- (21) Presentation (PRES), i. e. any layout and organizational error.

As a result of the sample revision procedure based on RPs, not all the aforementioned error types apply to our analysis, which only focuses on small text segments, ranging from individual LSP terms to short phrases. Predictably, errors concerning the text presentation, syntax, and smoothness will not or hardly be found.

## 5 Analysis

The sample assessment of the Spanish and Italian raw outputs produced by DeepL for the three genres investigated in this study focuses on the acceptability of the selected RPs (5.1) and the number and types of errors produced by NMT (5.2). In line with our RQs, the data will be presented in a contrastive perspective to highlight any common or peculiar trends associated with a specific genre or TL.

### 5.1 Acceptability

As anticipated, acceptability was calculated for each RP by following PACTE's (2009) method, i. e. by assigning a score of 0, 1.5 or 3 to non-acceptable, partially acceptable and acceptable solutions, respectively. We then used these scores to calculate the AI (cf. 4.2) of each TT, i. e. a weighted mean representing the overall level of acceptability of that text based on the assessed RPs. Considering the coefficients used for calculating the AI, the closer the value to 3, the higher the acceptability of the TT.

As expected, the contrastive analysis of the AIs (Figure 2) showed that none of the raw outputs can be considered fully acceptable. Still, the Spanish MemOp and SPA scored around 2, thus exceeding the threshold of partial acceptability (i. e. 1.5), while the

Italian TTs for the same genres are considerably below and slightly above the said threshold, i. e. they can be considered non-acceptable and partially acceptable, respectively. These results partially counter our initial hypothesis about the difficulty of the three genres under scrutiny, as both the supposedly most difficult STs achieved higher acceptability than the one considered as the easiest – i. e. the PoA – at least in one language, i. e. Spanish. Instead, Italian raw outputs largely mirror our initial ranking. Overall acceptability – and consequently the suitability of specific genres for NMT – therefore appear to be more language- than genre-dependent.

Indeed, a consistent asymmetry can be observed in the levels of acceptability of the Spanish and the Italian outputs, with the former outperforming the latter in all three genres (+22% in the PoA, +92% in the MemOp, and +17% in the SPA). Given that both language combinations (EN>ES and EN>IT) imply a shift from a common-law to a civil-law system, we could presume that the asymmetries between the two legal families are less challenging for NMT than those between the two languages. Yet, it should also be considered that Spanish and Italian are not equally spoken and that the volume of parallel texts available to the software might not be comparable. Hence, this hypothesis can only be tested by studying two or more TLs with a similar number of speakers and reference material available online.

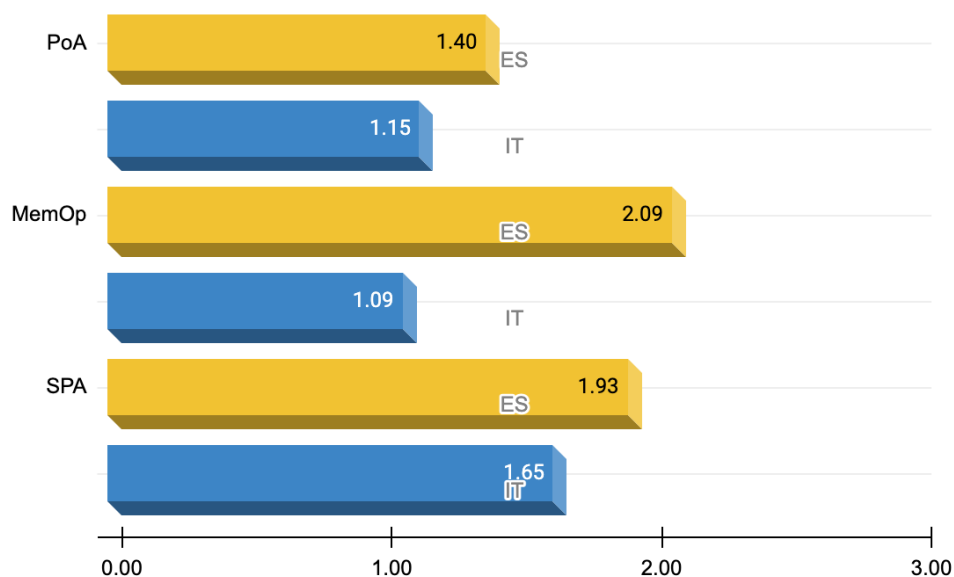


Figure 2: Acceptability indexes per TTs

Further insights into the acceptability of the solutions provided by DeepL can be gained by looking at the distribution of A, PA, and NA solutions across languages and texts (Figure 3). This shows that both the language- and the genre-related differences in the AIs mostly result from a marked imbalance in the ratios of A and NA solutions in the two

languages and across the three genres, with PA solutions accounting for 24–30% of all RPs, irrespective of the genre and the TL. Since PA solutions can only involve language but not accuracy errors (cf. Quinci 2023: 123), the qualitative gap between one language and the other and one genre and the other is to be ascribed precisely to the wrong transfer of meaning or selection of equivalent terminology – i. e. following our classification, to errors such as nonsense, inaccuracy, distortion of meaning, terminology, and legal cultural reference.

It is interesting to note that the greatest disproportion between A and NA solutions in both languages (approximately 50% vs 20%) concerns the MemOp, with Spanish solutions being acceptable in over 57% of cases and Italian ones being non-acceptable in a similar proportion (51.5%). This explains why this genre is the one with the most marked difference in the AIs of the two languages (cf. Figure 1). This finding could have socio-cultural and political reasons, as the strong presence of (non-English speaking) Latin American immigrants in the US, i. e. the jurisdiction in which the document was issued, requires the translation into Spanish of a wide variety of legal texts and terms, including judicial ones. These might thus provide NMT with reliable reference material to access. Naturally, this does not apply to Italian, in which English-Italian legal bi-texts are much more uncommon, and the closest equivalent genre, i. e. the Italian *sentenza*, is not generally available or easily retrievable online.

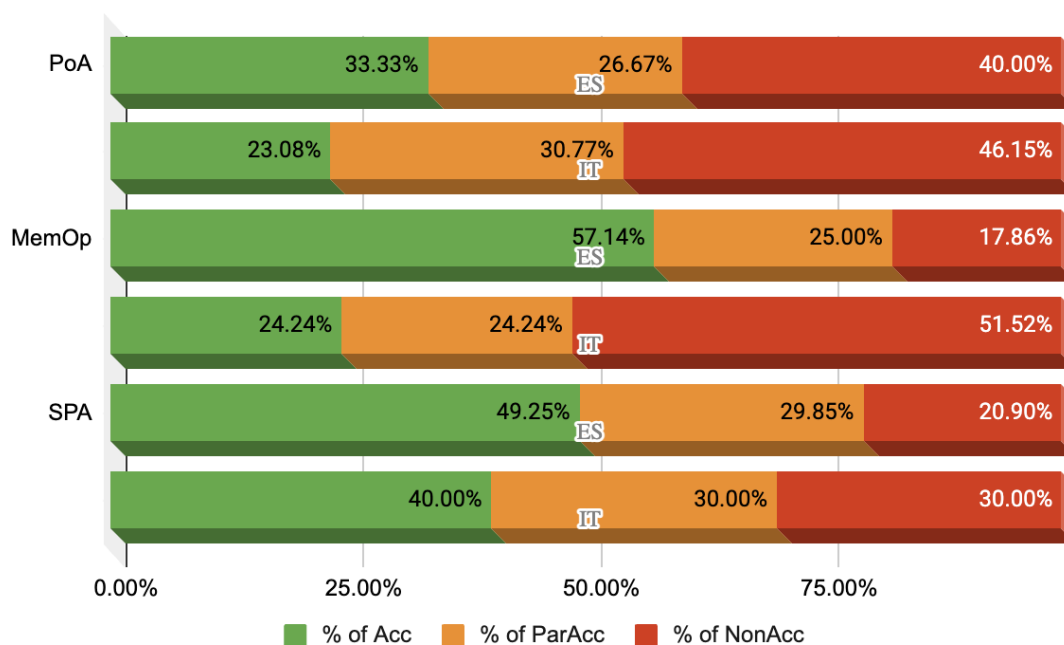


Figure 3: Distribution of acceptable, partially acceptable, and non-acceptable solutions across languages and texts



The PoA and the SPA show instead more comparable AIs in the two languages, with Spanish scoring approximately 10% higher than Italian in both cases. The greater retrievability of Italian parallel texts, which are, respectively, (sample) *procure* and *contratti* (be they share purchase agreements or other types of comparable contracts), might have played a role in reducing the gap between the two languages.

It is also worth noting that the SPA is the genre with the (second) lowest percentages of non-acceptable errors in both TLs, though Spanish scored even lower in the MemOp. Given the unique nature of this genre, which blends legal and financial LSPs, it might be assumed that the comparatively higher acceptability of these TTs is precisely due to the presence of financial terminology. The leading role of English-speaking countries in the world economy and that of English/American economists in the field undoubtedly make English the international language of finance and economics. This explains why translations or parallel texts which can be suitable references for translating a SPA are not rare online in a variety of languages, including Spanish and Italian.

To test the major role of financial terminology in the level of acceptability of the SPA – as well as to gain other insights into the relationship between specific genres/languages and acceptability – we investigated any correlations between accuracy and specific types of RPs, i. e. the number of RPs classified as A, PA or NA per each type of challenge we had previously identified in the ST (e. g. PHRAS, TERM\_fin, TERM\_leg, LECULT, LEX; cf. 4.2 and Figure 1). The analysis considered both aggregate and disaggregate data and can thus show which types of RPs most often result in A, PA, or NA solutions in all Spanish and Italian TTs or each TT separately (cf. Appendices 2 to 4). As aggregate data (Figure 4) confirm, financial terminology, which is only found in the SPA, is the one reaching the highest percentage of acceptable solutions in both languages (57.14 in Spanish and 50% in Italian), even when compared with the aggregate data of the other categories. Similar positive results were obtained in the categories of phraseology (62.5%) and lexicon (57.14%) but with reference to Spanish only, as Italian scored considerably lower. Therefore, it can be concluded that both Spanish and Italian financial equivalents had a positive impact on the overall level of acceptability of the SPA and were generally more accurate than the legal terminological equivalents in the same texts (cf. Appendix 4).

The patterns of association between acceptability and the type of RP also suggest that the categories most often resulting in translation errors are those of legal terminology and legal system-bound phraseology (cf. Table 4 for an overview). Curiously, legal phraseology (PHRAS) and system-bound terminology obtained slightly better results as they were mostly assessed as partially acceptable. System-bound notions, then, do not seemingly represent a translation challenge per se but appear to be better tackled when expressed through phrases than terms. Indeed, LSP phraseology was generally more acceptable than LSP terminology. This might be due to the wider applications that legal phrases have across genres as compared to terms, which are more genre-specific. In other words, if the same legal phrases are often used in more than one genre, NMT will

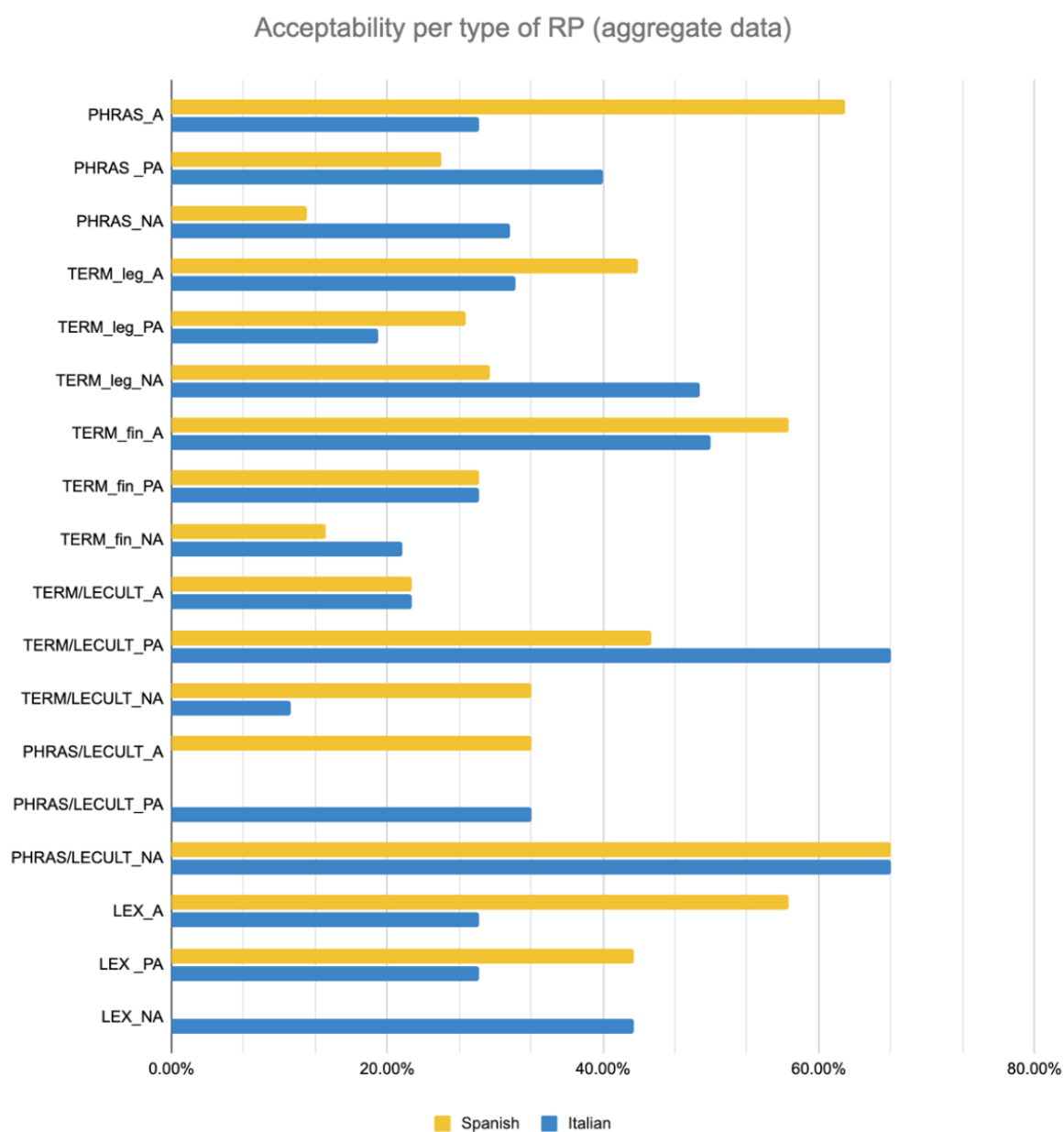


Figure 4: Acceptability per type of RP (aggregate data)

retrieve more reference material on which to base its calculations, thus producing better outputs.

Another consideration emerging from the data in Table 4 concerns the MemOp, which displays a unique pattern, with the two languages having different levels of acceptability with reference to all types of RPs. This mirrors the considerable quality gap observed in Spanish and Italian in this genre (Figure 2) and, most importantly, explains

that the gap is not due to a specific type of translation challenge but is rather related to the genre itself.

Conversely, the SPA achieved overall acceptable or partially acceptable quality in all categories and in both languages, with the sole exception of PHRAS/LECULT. This would further confirm that results tend to vary with the genre, rather than the type of difficulty in the ST.

	<b>Aggregate data</b>	<b>PoA</b>	<b>MemOp</b>	<b>SPA</b>
<i>PHRAS</i>	A-PA	A-PA	A (Sp.) NA (It.)	A-PA
<i>TERM_leg</i>	PA-NA	NA	A (Sp.) NA (It.)	A-PA
<i>TERM_fin</i>	A			A
<i>TERM/LECULT</i>	PA	NA	A-PA	PA
<i>PHRAS/LECULT</i>	NA		A/NA (Sp.) NA (It.)	NA (Sp.) PA (It.)
<i>LEX</i>	A-PA		A-PA (Sp.) NA (It.)	A-PA

Table 4: Level of acceptability per type of RP (cf. Appendices 2 to 4)

When correlating the same data with the TL (Table 5), data confirm our observations concerning the overall level of acceptability (Figure 2), with Spanish outperforming Italian in most categories across the three texts. The only minor exceptions concern the categories of financial terminology and system-bound terms. The reasons behind the comparable performance of Spanish and Italian in the financial field were discussed previously in this section; those behind system-bound terms appear instead less evident. Anyhow, if considering the substantial disproportion of language-related data, it could be concluded that acceptability in the legal field appears to be not only genre- but also language-dependent, irrespective of the type of challenges posed by the ST.

	<b>Aggregate data</b>	<b>PoA</b>	<b>MemOp</b>	<b>SPA</b>
<i>PHRAS</i>	SP	=	SP	SP
<i>TERM_leg</i>	SP	SP	SP	SP
<i>TERM_fin</i>	=			=
<i>TERM/LECULT</i>	IT	=	IT	=
<i>PHRAS/LECULT</i>	=		SP	IT
<i>LEX</i>	SP		SP	SP

Table 5: Language with the highest acceptability per type of RP (cf. Appendices 2 to 4)

## 5.2 Error analysis

The analysis of translation errors only considers the TT solutions assessed as PA or NA and investigates their distribution across genres and languages. It is essential to note that despite the overlap of some labels used for describing RPs and errors (e. g. TERM, PHRAS, LECULT, LEX), these are not to be viewed in a one-for-one relationship, as a terminological challenge might equally produce a terminological error or other types of errors, e. g. nonsense, distortion of meaning or tailoring. The two notions are then to be kept separate. Specifically, the following analysis does not refer to the type of RP in the ST (cf. 5.1), but only to the types or errors found in the TTs, irrespective of the nature of the corresponding RP.

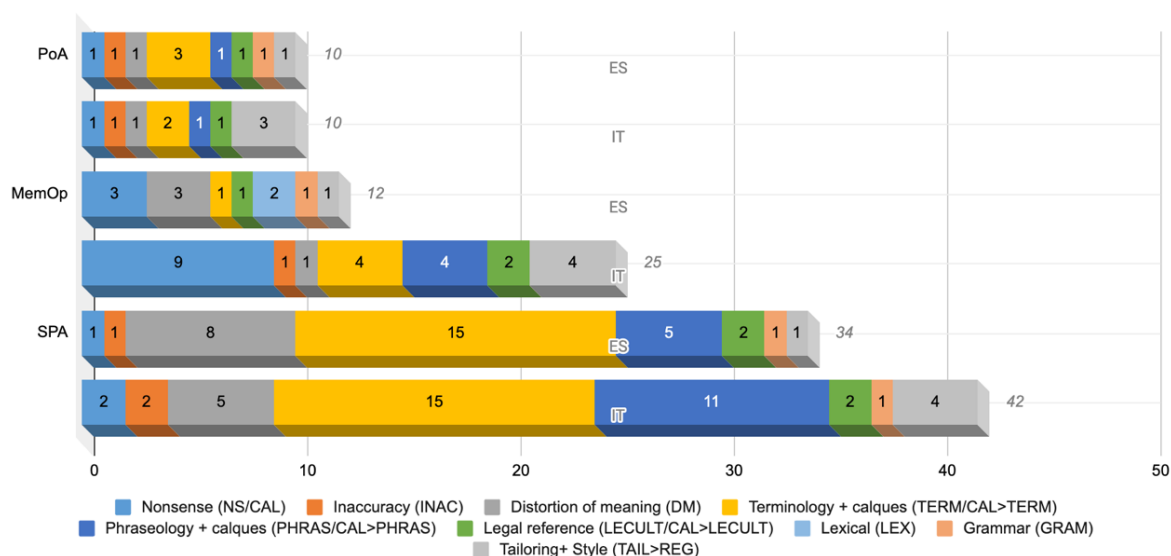


Figure 5: Number of errors per error type

The absolute scores concerning the number of errors per TT (Figure 5) show different patterns in the number of errors across languages and genres as well as their distribution across error types. The greatest difference between Spanish and Italian (+110%) can be observed in the MemOp, followed by the SPA (+24%), while the PoA produced the same number of errors in both languages. These results were naturally predictable based on the Als of the two TLs in each genre examined earlier in this section (cf. Figure 2). What is instead new here is the overall number of errors per genre, which appears to grow with the assumed difficulty of the ST. Despite these data being seemingly in line with our initial hypothesis concerning the level of difficulty of the STs (see 4), this consistent increase in the number of errors is most probably due to reasons other than the ST difficulty, which include one or a combination of the following:

- (1) the varying number of RPs selected in each ST (13, 27 and 61, respectively), which was determined also on the basis of the text length (see 4.2);

- (2) the repeated occurrences of specific RPs, especially in the MemOp and the SPA, e. g. Trail Court (12 times in the MemOp), attorney’s fees and promissory estoppel (each repeated 3 times in the MemOp), purchaser and seller (with, respectively, 87 and 73 occurrences in the SPA) (see Appendix 1);
- (3) the presence of diverse equivalents for the same RP in one TL or the other, which unevenly increased the number of target-text solutions assessed per each language.

For these reasons, the contrastive analysis of the incidence of specific error types in the genres and languages under consideration cannot be carried out based on absolute values but should rather consider the ratio between the number of faulty solutions in the specific TT and that of the errors assigned to a specific category. As shown in Figure 6, though errors tend to evenly distribute across genres and languages, some genre-specific and language-specific patterns of associations seem to emerge.

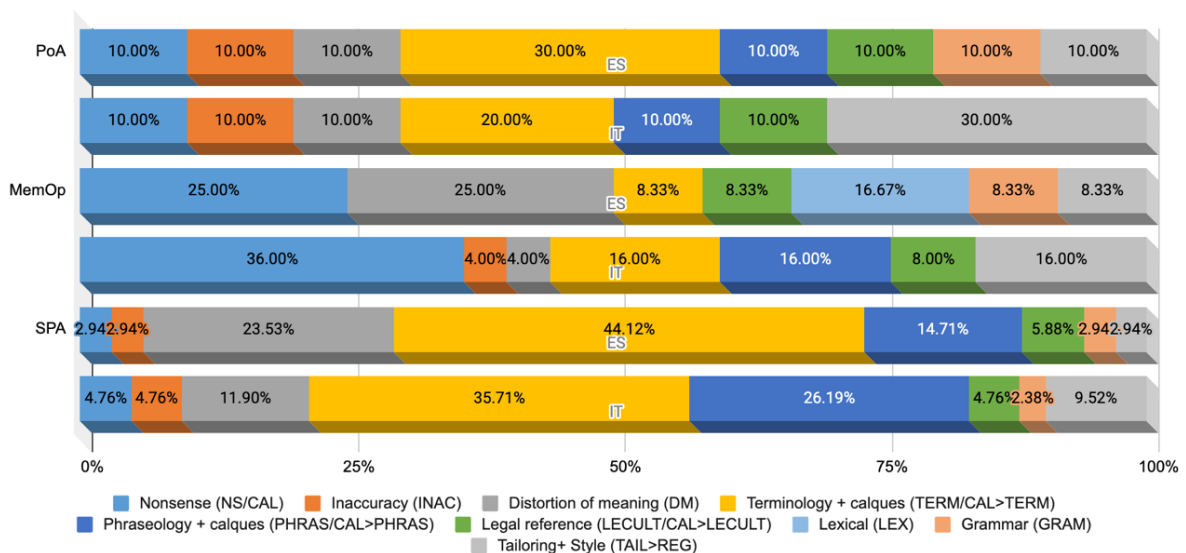


Figure 6: Incidence of error types by genre and target language

As for the genres, it is worth noting that in the PoA, the three types of meaning-related errors (i. e. NS, INAC, and DM) account each for 10% of errors in both Spanish and Italian. The same applies to phraseology and legal cultural references. The only discrepancies between the two TLs concern the categories of terminology and tailoring, with Spanish terminological equivalents accounting for 30% of errors and Italian ones for 20%, and tailoring errors representing only 10% of errors in Spanish but 30% of errors in Italian. Interestingly, the same pattern can be observed in the SPA, with Spanish being more affected by terminological issues than Italian, and Italian being more prone to tailoring errors than Spanish. The MemOp is instead the only genre in which terminological issues have a greater incidence on the Italian rather than the Spanish TT, while tailoring errors continue to be proportionally more present in the Italian output. Tailoring

seems therefore to be an issue typical of Italian vs Spanish raw outputs in all three genres, while terminological issues are generally more present in Spanish TTs.

It is also worth examining the relationship between LSP-related errors (i. e. terminological and phraseological ones) with meaning-related errors (i. e. NS, INAC, and DM), as it appears to vary from one genre to the other. In the PoA, LSP- and meaning-related errors are pretty much balanced, as they account for about 30–40% of errors. The MemOp shows instead a much more uneven proportion, with meaning-related errors representing 44–50% of the total number of errors and LSP-related ones only concerning 16–32%. Finally, in the SPA meaning is affected in about 21–29% of cases, while incorrect terminology represents 35–44% of errors. Curiously, the proportions of meaning- and LSP-related errors in the three genres do not appear to be particularly affected by language, as both Spanish and Italian display comparable patterns. Genres would then be differently exposed to errors concerning text accuracy, which are particularly frequent in the MemOp, while terminological and phraseological equivalence is mostly affected in the SPA.

The categories having instead the most limited impact on the overall number of errors are those concerning lexical and grammatical errors. Both error types generally affected a negligible number of items and were mostly found in the Spanish outputs; precisely, lexical errors only concerned the Spanish MemOp, while grammar errors were found in all Spanish TTs and the Italian SPA. This would suggest that non-specialised language is mostly affected in English-to-Spanish machine-translated TTs, though to a limited extent.

A final point to be addressed with reference to error analysis concerns the RPs having more than one occurrence in the STs (cf. Appendix 1), which could thus be associated with one or more (different) equivalents throughout the TTs. Leaving aside the level of acceptability of these equivalents, which was implicitly addressed in the previous sections, the analysis here focuses on the number and type of equivalents adopted by NMT to test its terminological consistency and cohesion. There are two possible scenarios, i. e. one in which all occurrences were translated by resorting to the same equivalent, and one where the same item is associated with different TT equivalents.

As the data in Appendix 5 show, the RPs occurring more than once in the three STs are 42. The first scenario appears to be by far the most common, as the RPs corresponding to more than one equivalent are only 6 in Spanish and 8 in Italian. Terminological inconsistency seems therefore to be limited to a few cases. However, its impact on the TT should not be underestimated. Only in two cases per language (RPs 17 and 33 in Appendix 5), indeed, inconsistency remains on the linguistic surface of the TT without affecting its meaning, as two different equivalents are used which are equally acceptable in the TL. The same might also apply to the Italian equivalents for “whereas”, which would be, in principle, fully acceptable, as one was marked as PA precisely because comparable texts avoid inconsistent phrasing throughout the premises of a judgement. In the remaining cases, i. e. 4 RPs in Spanish and 5 in Italian, the multiple

equivalents proposed for the same RP also include PA or NA solutions. This turns inconsistency into unreliability, as the same item can be equally – and unpredictably – associated with correct, suitable equivalents or unacceptable ones. Further, the PA and NA solutions alternating with acceptable ones often include errors concerning sense, especially in the Italian outputs, e. g. the nonsensical calques *tribunale di prova* or *corte di prova* for “Trial Court”, or *su e soggetto a* for “on and subject to”.

## 6 Provisional conclusions

The exploratory study presented in this paper was intended to shed light on the still underexplored correlations between NMT quality and specific specialised legal genres (i. e. a power of attorney, a memorandum opinion and a share purchase agreement) and languages (i. e. Spanish and Italian). The analysis focused on the acceptability of pre-identified rich points (PACTE 2009) and translation errors in the attempt to find any correlations between acceptability, errors, and the genre and/or the target language under scrutiny.

In terms of acceptability, the data showed a consistent asymmetry in the quality of the Spanish and the Italian outputs, with the former outperforming the latter in all three genres and achieving better results in the assumingly most difficult genres, i. e. the MemOp and the SPA. These results suggest that overall acceptability is more language- than genre-dependent, as not only is quality consistently higher in one TL than the other, but also in one genre than the other depending on the TL.

The different quality levels achieved by the three genres in the two TLs can be tentatively explained based on the volume of parallel texts or bi-texts available in that TL. Specifically, the MemOp might have achieved higher acceptability in Spanish for socio-cultural and political reasons, as the strong presence of (non-English speaking) Latin American immigrants in the US requires the translation into Spanish of a wide variety of legal texts. On the other hand, the comparatively greater retrievability of Italian parallel or background texts for the PoA and SPA might be behind the reduced quality gap between the two TLs in these genres.

The correlation between accuracy and specific types of RPs showed that financial LPS is generally more acceptable than legal LPS in both TLs. The categories most often resulting in translation errors are precisely those of legal terminology and legal system-bound phraseology; legal phraseology was instead generally acceptable, possibly due to its wider applications across genres as compared to terms, which are more genre-specific. Finally, the substantial disproportion between Spanish and Italian in the acceptability of specific categories of RPs suggests that results are largely language-dependent, irrespective of the type of challenges posed by the ST.

Error analysis also revealed different patterns in the number of errors across languages and genres as well as their distribution across error types. Although most error types tend to evenly distribute across genres and languages, tailoring issues

appeared to be typical of Italian vs Spanish in all three genres, while terminological issues were generally more present in Spanish TTs.

Interestingly, the correlation between the categories accounting for the largest number of errors, i. e. LSP- and meaning-related errors, was found to vary from one genre to the other, irrespective of the TL. Genres would then be differently exposed to errors concerning accuracy, on the one hand, and terminological and phraseological equivalence, on the other hand.

In terms of consistency, both the Spanish and Italian outputs performed well, with most of the repeated instances of the same RP being associated with the same equivalent. Nonetheless, some exceptions apply in which (a) equally acceptable equivalents alternated throughout the TT, thus generating inconsistency, or (b) both acceptable and partially/non-acceptable solutions were provided for the same RP, thus exposing the worrying unreliability and randomness of NMT in terminology management.

In conclusion, given the large genre- and language-dependency of results, NMT acceptability would not be so much affected by the systemic asymmetries between common law and civil law but rather by those concerning the genres and target languages at hand. This implies that NMT can be successfully implemented in the translation of specific genres from and into specific languages, while should be used with caution or avoided altogether when working on specific genres and/or from and into specific languages. Still, these findings only represent a first exploration of the matter and would deserve further investigation widening the number of language combinations and genres to be generalised. They could also pave the way for future research investigating the potential – instead of focusing exclusively on the drawbacks – of NMT as one of the various resources in the legal translator’s toolbox, which does not substitute nor compete with human reasoning, which remains key to perform the complex comparative law processes implied in any legal translation task.

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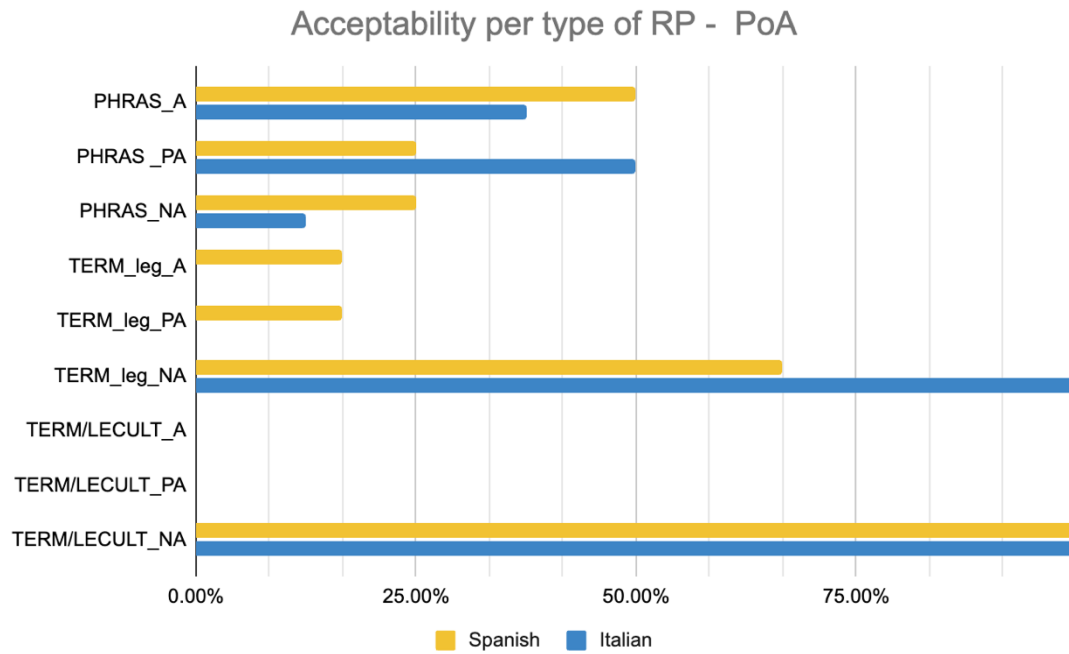
## Appendix 1: The RPs selected in each ST

	PoA		MemOp		SPA	
	RP	TYPE	RP	TYPE	RP	TYPE
1	Attorney (x3)	TERM	Judicial District Court	TERM/ CULT	SHARE PURCHASE AGREEMENT	TERM/ CULT
2	KNOW ALL PERSONS BY THESE PRESENTS That_	PHRAS	Trial Court (x12)	TERM	BY AND BETWEEN	PHRAS
3	hereinafter known as	PHRAS	Reversed and Rendered in Part	PHRAS	Purchaser (x87)	TERM_leg
4	make, constitute and appoint_	PHRAS	Reversed and Remanded in Part	PHRAS	Seller (x73)	TERM_leg
5	its true and lawful attorney	PHRAS	Memorandum Opinion	TERM/ CULT	Whereas (x4)	PHRAS
6	proofs of loss (x2)	TERM	reverse the judgment (x2)	PHRAS /CULT	private company limited by shares	TERM_fin
7	statutes and laws	TERM/ CULT	render judgment (x2)	PHRAS	issued (equity shares) (x3)	PHRAS
8	may be hereafter passed amendatory thereof and supplementary thereto	PHRAS	take nothing against (x2)	LEX	fully paid-up (equity shares) (x2)	PHRAS
9	notice of termination	TERM	attorney's fees (x3)	TERM	equity shares	TERM_fin
10	agree and stipulate	PHRAS	entered into (6)	LEX	equity share capital (x2)	TERM_fin
11	in compliance with and according to	PHRAS	non-exclusive sales advisory agreement	TERM	par value (x3)	TERM_fin
12	This instrument was acknowledged_	TERM	joined the 1997 Agreement	PHRAS	Target Shares (x28)	TERM_fin

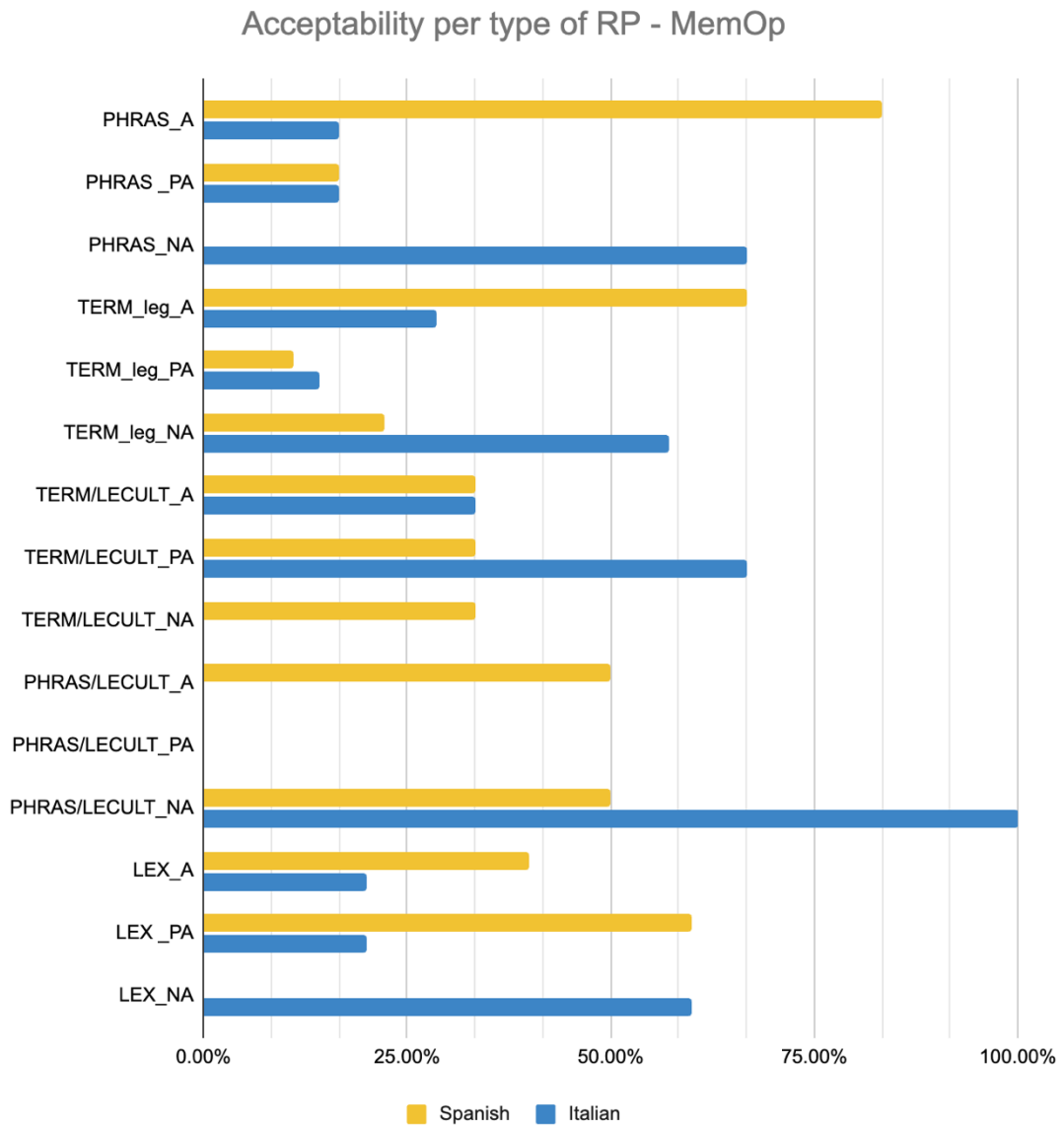
	PoA		MemOp		SPA	
	RP	TYPE	RP	TYPE	RP	TYPE
13	before me	PHRAS	Protected Buyer (x2)	TERM	on and subject to (x2)	PHRAS
14			tail provision (x2)	TERM	sell, assign and transfer	TERM_leg
15			declaratory judgment action	TERM	right, title and interest	TERM_leg
16			promissory estoppel (x3)	TERM/ CULT	consummation (x2)	TERM_leg
17			realigned the parties	PHRAS /CULT	Closing (x9)	TERM/ CULT
18			Damages (x2)	TERM	closing date (x36)	TERM_leg
19			court costs	TERM	free and clear (x3)	PHRAS
20			erred in disregarding	LEX	verified and dealt with (x4)	PHRAS
21			(to rule as) a matter of law	TERM/ CULT	share premium amount	TERM_fin
22			beyond the province of the jury	TERM	redeemable preference shares	TERM_fin
23			reasonable minds cannot differ	LEX	Inter-Company Capex Balances (x3)	TERM_fin
24			suffered injury	PHRAS	cash and cash equivalents (x2)	TERM_fin
25			detrimental reliance	TERM/ CULT	debt-like items	TERM_fin
26			remand the case (x2)	PHRAS	NWC Adjustment (x4)	TERM_fin
27			Declaratory Judgments Act	TERM/ CULT	income receivable	TERM_fin
28					representations and warranties (x4)	TERM_leg
29					execution and performance (of this Agreement) (x3)	TERM_leg
30					duly stamp(ed) (x4)	PHRAS
31					do all things necessary and incidental thereto	LEX
32					complete, good and valid title	PHRAS
33					own and hold (x2)/ownership and holding	PHRAS
34					manner of payments	TERM_leg
35					actual separation costs	TERM_fin
36					notices or filings	TERM_leg
37					legal, valid and binding obligations	TERM_leg
38					Disclosure Letter (x3)	TERM_leg
39					Best Knowledge	TERM_leg
40					restitution in kind (x7)	TERM_leg
41					equitable discretion (x2)	TERM_leg

	PoA		MemOp		SPA	
	RP	TYPE	RP	TYPE	RP	TYPE
42					monetary damages (x3)	TERM_leg
43					Notwithstanding anything contained in any other provision of this Agreement (x2)	PHRAS
44					specific liability, accrual or depreciation	TERM_fin
45					without prejudice to the rights of any party under or pursuant to any policy of insurance	PHRAS
46					due diligence examination and discussions	TERM_leg
47					Tax matter (x2)	LEX
48					special, punitive, exemplary, indirect, incidental or consequential Loss	PHRAS
49					limitations or caps on liability	TERM_leg
50					exclusive remedies (x2)	TERM_leg
51					under statute or in equity	PHRAS/ CULT
52					represents, warrants and covenants (x2)	TERM_leg
53					any and all necessary actions, at its own cost and expense	PHRAS
54					interpretation and construction	TERM_leg
55					governing law	TERM_leg
56					promises, agreements, conditions and understandings (x2)	TERM_leg
57					act of God	TERM_leg
58					work-to-rule action	TERM_leg
59					go-slow	TERM_leg
60					severability	TERM_leg
61					intending to be bound	PHRAS

## Appendix 2: Acceptability per type of RP in the PoA

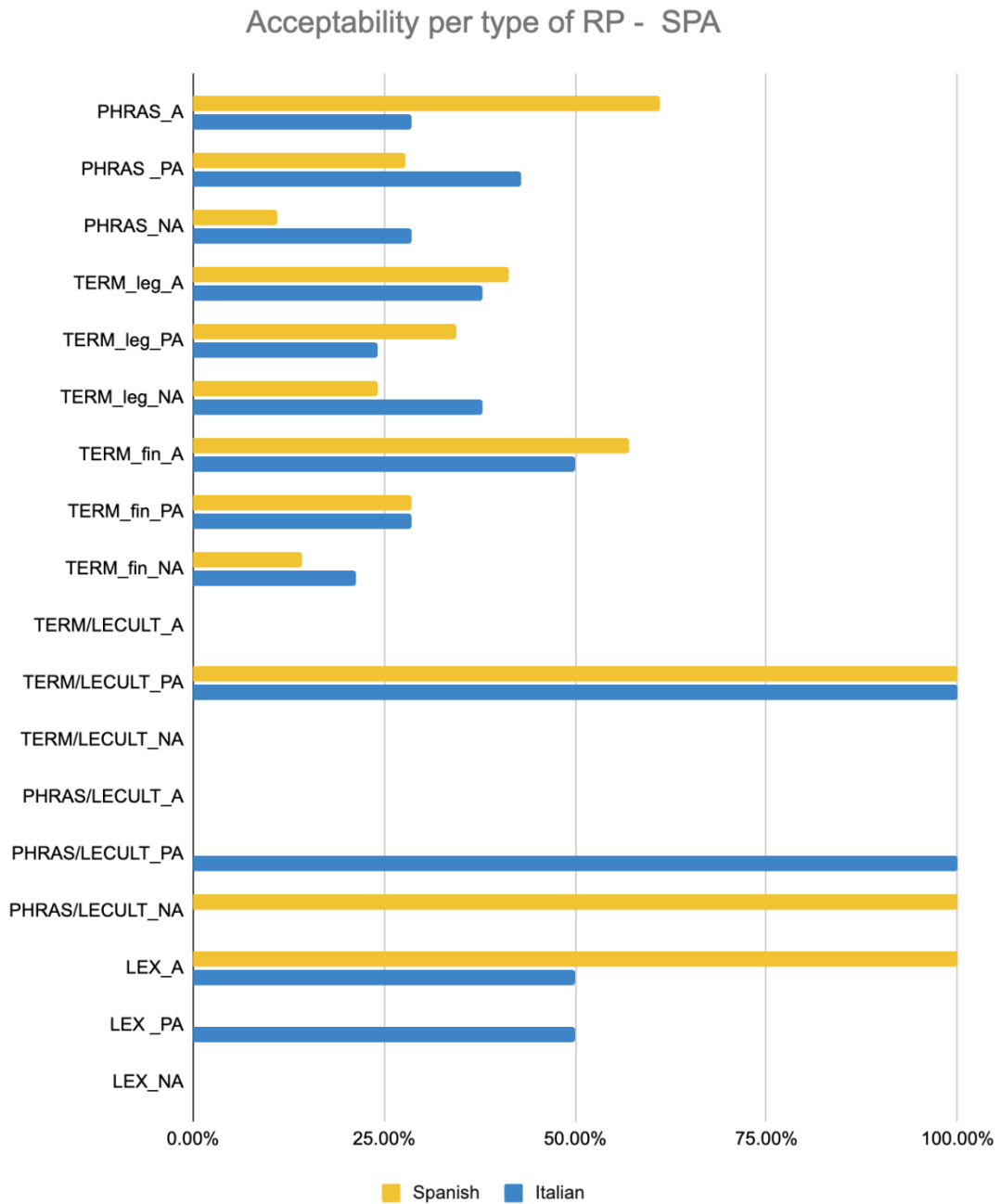


### Appendix 3: Acceptability per type of RP in the MemOp





### Appendix 4: Acceptability per type of RP in the SPA



## Appendix 5: RPs occurring more than once in the ST and their equivalents

	RP	SP equivalent(s)	Acc.	IT equivalent(s)	Acc.
1	Attorney (x3)	abogado apoderado	NA A	avvocato	NA
2	Trial Court (x12)	Tribunal de Primera Instancia	A	tribunale di prova (x5) tribunale del processo corte di prova (x5) tribunale	NA NA NA PA
3	reverse the judgment (x2)	Revocamos la sentencia	A	Invertiamo il giudizio	NA
4	render judgment (x2)	dictamos sentencia	A	rendiamo il giudizio	NA
5	take nothing against (x2)	no tomen nada contra	PA	non prendono niente contro	NA
6	attorney's fees (x3)	honorarios de los abogados	PA	tasse dell'avvocato spese legali tasse del procuratore	NA A NA
7	entered into (6)	celebró un acuerdo (x5) llegó a	A PA	stipulato entrato in	A NA
8	Protected Buyer (x2)	Comprador Protegido	NA	acquirente protetto	NA
9	tail provision (x2)	disposición de cola	NA	disposizione di coda	NA
10	promissory estoppel (x3)	impedimento promisorio	PA	estoppel promissorio	PA
11	Damages (x2)	daños y perjuicios	A	danni	A
12	remand the case (x2)	devolvemos el caso	A	rimandiamo il caso	PA
13	Purchaser (x87)	Comprador	A	Acquirente	A
14	Seller (x73)	Vendedor	A	Venditore	A
15	whereas (x4)	Considerando	PA	Premesso che (x2) Considerando (2)	A PA (cons)
16	issued (equity shares) (x3)	emitidas	A	emesse	A
17	fully paid-up (equity shares) (x2)	totalmente desembolsadas desembolsado	A A	interamente versate versato	A A
18	equity share capital (x2)	capital social	NA	capitale azionario	A
19	par value (x3)	valor nominal	A	valore nominale	A
20	Target Shares (x28)	Acciones Objetivo Acciones de Destino	NA NA	Azioni Target	NA
21	on and subject to (x2)	con sujeción a en	PA PA	su e soggetto a in base agli	NA PA
22	consummation (x2)	consumación	NA	consumazione	NA
23	Closing (x9)	Cierre	PA	chiusura	PA
24	closing date (x36)	Fecha de Cierre	PA	Data di chiusura	PA
25	free and clear (x3)	libres	PA	libere ed esenti libero da (x2)	A PA

	RP	SP equivalent(s)	Acc.	IT equivalent(s)	Acc.
26	verified and dealt with (x4)	se verificará y tratará	A	verificato e trattato	A
27	Inter-Company Capex Balances (x3)	Saldos de Capex Interempresa	PA	Saldi Capex Intersocietari	PA
28	cash and cash equivalents (x2)	el efectivo y los equivalentes de efectivo	A	la liquidità e gli equivalenti di liquidità	PA
29	NWC Adjustment (x4)	Ajuste NWC	NA	Aggiustamento NWC	NA
30	representations and warranties (x4)	declaraciones y garantías	A	dichiarazioni e le garanzie	A
31	execution and performance (of this Agreement) (x3)	ejecución y el cumplimiento del presente Contrato	PA	l'esecuzione e l'esecuzione	NA
32	duly stamp(ed) (x4)	sellará debidamente	A	debitamente timbrare/timbrato	PA
33	own and hold (x2)/ownership and holding	será propietario y titular propiedad y titularidad	A A	possiederà e deterrà il proprietà e partecipazione	A NA
34	Disclosure Letter (x3)	Carta de Información	PA	Lettera Informativa	PA
35	restitution in kind (x7)	restitución en especie	PA	restituzione in natura	NA
36	equitable discretion (x2)	discreción equitativa	PA	discrezione equa	NA
37	monetary damages (x3)	indemnización monetaria	A	danni monetari	NA
38	Notwithstanding anything contained (in any other provision of this Agreement) (x2)	Sin perjuicio de cualquier otra disposición contenida	A	Nonostante qualsiasi cosa contenuta	NA
39	Tax matter (x2)	cuestión fiscal	A	questione fiscale	A
40	exclusive remedies (x2)	recursos exclusivos	A	rimedi esclusivi	A
41	represents, warrants and covenants (x2)	declara, garantiza y acuerda	PA	dichiara, garantisce e concorda	PA
42	promises, agreements, conditions and understandings (x2)	promesas, acuerdos, condiciones y entendimientos	A	promesse, gli accordi, le condizioni e le intese	A

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