

Translating Sports Terminology Human Expertise Versus Artificial Intelligence in the English–Arabic Context

ترجمة المصطلحات والتعبيرات الرياضية: دراسة مقارنة بين الخبرة البشرية والذكاء الاصطناعي في السياق الإنجليزي-العربي

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Abstract:

This study examines the translation of English sports terminology into Arabic by comparing human expertise with NMT and LLMs. It analyses five categories: technical and tactical terms, culture-specific expressions, metaphors, idioms, and proper names and acronyms. A comparative descriptive approach is used to evaluate Google Translate, ChatGPT, and Google Gemini against human translations. The analysis focuses on accuracy, contextual and cultural equivalence, fluency, register, and figurative language. The findings show that human translation achieves greater accuracy and contextual sensitivity, while AI performs effectively in standardized contexts. The study concludes that AI should primarily serve as a supportive tool within human-in-the-loop translation workflows.

Keywords: sports terminology; human translation; artificial intelligence; neural machine translation; translation quality.

ملخص:

تتناول هذه الدراسة ترجمة المصطلحات الرياضية من الإنجليزية إلى العربية، من خلال مقارنة كفاءة الترجمة البشرية بأداء الترجمة الآلية العصبية (NMT) ونماذج اللغة الكبيرة (LLMs). وتحلل الدراسة خمس فئات رئيسية، تتمثل في المصطلحات التقنية والتكتيكية، والتعبيرات المرتبطة بالثقافة، واللغة المجازية، والتعبيرات الاصطلاحية، والأسماء الخاصة والاختصارات. وقد اعتمد منهج وصفي مقارنة لتقييم مخرجات Google Translate و ChatGPT و Google Gemini في مقابل الترجمات البشرية. وتركز عملية التحليل على الدقة، والتكافؤ السياقي والثقافي، والطلاقة، ومستوى اللغة، ومعالجة اللغة المجازية. وتُظهر النتائج تفوق الترجمة البشرية من حيث

الدقة والحساسية للسياق، في حين أظهرت أدوات الذكاء الاصطناعي أداءً فعالاً في السياقات المعيارية. وتتلخص الدراسة إلى أن الذكاء الاصطناعي ينبغي أن يُوظف أساساً بوصفه أداةً مساندة ضمن سير عمل ترجمي قائم على التكامل بين الإنسان والآلة.

الكلمات المتاحية: المصطلحات الرياضية؛ الترجمة البشرية؛ الذكاء الاصطناعي؛ الترجمة الآلية العصبية؛ جودة الترجمة.

1. Introduction

The rapid development of artificial intelligence (AI) has transformed translation practices and progressively reshaped the role of the human translator. Over the past two decades, translation technologies have evolved from rule-based and statistical systems to Neural Machine Translation (NMT), which significantly improved the fluency and contextual coherence of machine-generated texts (Bahdanau et al., 2015). More recently, Large Language Models (LLMs) have further expanded automated translation by processing broader contextual information and responding flexibly to prompts (Vaswani et al., 2017). Consequently, AI-assisted translation is increasingly being used not only for standardized texts but also for specialized, creative, and media-oriented content.

Sports discourse represents a particularly demanding domain because it combines technical terminology, tactical descriptions, statistical expressions, idioms, metaphors, emotional language, and culture-specific references. The international circulation of major sporting events has increased the need for effective translation across linguistic and cultural boundaries, particularly between English and Arabic. In this context, translation requires more than lexical accuracy: it involves preserving communicative intent, register, cultural meaning, and the expressive force of sports language. English–Arabic translation is particularly challenging because of significant structural and cultural differences, as well as the frequent use of conventionalized metaphors, abbreviations, idiomatic expressions, and specialized terminology in English sports discourse.

Although AI translation systems have achieved considerable progress, their performance in culturally embedded and figurative language remains uncertain. NMT systems may produce fluent outputs while relying excessively on literal translation, resulting in inaccurate terminology or inappropriate renderings of metaphors and idioms. LLMs appear to offer greater contextual flexibility, but their ability to consistently match the pragmatic and stylistic decisions of professional translators requires further empirical investigation. This study therefore compares the performance of human translators, Google Translate as an NMT system, and ChatGPT-4o and Google Gemini as LLM-based systems in English–Arabic sports translation.

The study examines a corpus of 20 representative sports terms and expressions covering five categories: technical and tactical terminology, culture-specific expressions, metaphors, idioms, and proper names, acronyms, and abbreviations. The translations are evaluated using a modified Multidimensional Quality Metrics (MQM) framework,

focusing on accuracy, terminology, contextual and cultural equivalence, register, fluency, and the treatment of figurative language. The analysis also identifies the translation strategies employed, including literal translation, borrowing, functional equivalence, adaptation, and paraphrase. By combining quantitative assessment with qualitative analysis, the study seeks to identify the strengths and limitations of each translation approach and to determine the contexts in which human intervention remains necessary.

The study contributes to current research at the intersection of translation studies, computational linguistics, and specialized sports discourse. More specifically, it provides empirical evidence on the capabilities and limitations of contemporary AI systems in English–Arabic sports translation. The findings may inform professional translation workflows and support the development of translator education that combines AI literacy with the linguistic, pragmatic, and cultural competencies that remain essential for high-quality specialized translation.

2. Theoretical Framework :

2.1. Understanding Sports Discourse :

Sports discourse can be defined as structured communication within the domain of sport that combines specialized terminology, metaphoric expression, and interactional patterns unique to its context (Snezhko, 2025). It is generally classified as a form of media discourse, characterized primarily by description and commentary delivered through a unique, specialized vocabulary. Despite its ubiquity, linguists note that the field still lacks a single, unified definition and methodology, in part because sports discourse constantly develops and updates alongside the social and cultural changes it reflects.

Therefore, sports discourse constitutes a specialized domain of language characterized by distinct syntactic, semantic, and pragmatic features (Beard, 1998). It spans multiple textual genres, including technical tactical reports, official press releases, print and digital journalism, and real-time broadcast commentary. Linguistically, sports discourse relies heavily on expressive action verbs, dense nominal compounds, dramatic hyperbolic adjectives, and dynamic figurative imagery designed to convey physical motion, urgency, and competition.

2.2. Characteristics of Sports Discourse :

A few features recur across the literature on sports discourse regardless of language:

- Timeliness and immediacy ; sports news is written and consumed as events unfold, prioritizing speed over deliberation
- Genre hybridity ; it borrows structurally from journalistic, legal (rules/refereeing), and conversational registers simultaneously (Anisimova & Bogatikova, 2024)
- Emotional and cultural resonance ; it reflects and actively shapes collective identity and societal values, not merely reporting fact (Anisimova & Bogatikova, 2024)
- Semantic economy ; the language of sports obeys a principle of conciseness, favoring compressed, efficient phrasing over elaboration .
- Linguistic Features. At the level of language itself, sports discourse regularly deploys.

- Register variation between formal reporting and colloquial commentary (Ferguson, 1983)
- Specialized jargon and dense metaphoric expression, which together give the register much of its cultural texture (Research-journal)
- Syntactic compression typical of live commentary ; deletion of copulas, sentence-initial nominals, inversions, and heavy modifiers (Ferguson, 1983)
- Ongoing lexical innovation, with new terms entering the register as tactics, technologies, and fan cultures evolve (Anisimova & Bogatikova, 2024)

2.3. Types of Sports Discourse :

Sports discourse encompasses a range of communicative genres, each characterized by distinct linguistic, pragmatic, and functional features. The following categories illustrate the diversity of sports communication and the specific challenges :

- Live commentary ; spoken, real-time, syntactically compressed.
- Written sports journalism ; headlines, match reports, feature articles.
- Post-match interviews ; a semi-scripted, consensus-oriented exchange between player and journalist, often designed to avoid direct conflict or critical evaluation (Wilton, 2017).
- Fan and social media discourse ; informal, hashtag-driven, and identity-affirming (Snezhko, 2025).
- Regulatory/refereeing language ; precise, rule-bound, closer to legal register than journalistic register.

2.4. Sports Terminology :

Sports terminology forms a specialized and dynamic component of sports discourse, combining technical, cultural, and figurative elements. For the purposes of this study, it can be classified into five main categories. Technical and tactical terms describe specific aspects of gameplay, such as high press and low block. Culture-specific expressions reflect sporting traditions and practices that may require contextual adaptation, such as Boxing Day fixture. Metaphorical expressions, such as park the bus, convey sporting situations through figurative imagery and may create particular challenges in English–Arabic translation. Idiomatic expressions, including the ball is in your court, are fixed expressions whose meanings cannot always be inferred literally. Finally, proper names, acronyms, and abbreviations, such as UEFA and xG, represent highly condensed forms of specialized information. These categories highlight the semantic, cultural, and pragmatic complexity of sports language and explain why sports terminology may require strategies beyond literal translation (Al-Nuaimi, 2023; Belabbes & 2024 عبيد; El Alaoui & Jalid, 2023).

2.5. Human Translation Expertise Versus Artificial Intelligence

Human translation expertise is founded on translation competence, a multi-faceted construct encompassing bilingual sub-competence, extra-linguistic cultural knowledge, dynamic post-editing skills, and strategic problem-solving abilities (PACTE, 2003). Human translators do not merely swap words; they decode pragmatic intent, evaluate audience expectations, and apply creative stylistic adjustments.

Conversely, Artificial Intelligence operates through statistical and neural pattern recognition. Modern NMT architectures (such as Google Translate) process context through attention mechanisms, mapping source word sequences to target probability distributions (Bahdanau et al., 2015). Large Language Models (LLMs) extend this approach by leveraging vast pre-trained transformer layers capable of zero-shot in-context reasoning (Vaswani et al., 2017). While LLMs demonstrate remarkable syntactic fluency, they lack authentic embodiment, cultural lived experience, and genuine pragmatic understanding.

2.6. Translation Challenges in Sports Discourse :

Translating sports discourse from English into Arabic involves a combination of linguistic, contextual, and cultural challenges. Polysemy and contextual variation may cause difficulties when familiar words acquire specialized meanings within a sporting context, making contextual interpretation essential for accurate translation (Al-Azzawi & Nasser, 2021). Metaphorical and idiomatic expressions are particularly problematic because their intended meanings often extend beyond their literal wording and may require functional or culturally appropriate equivalents rather than direct translation (Alzawaydeh & Alghazo, 2018; El Alaoui & Jalid, 2023). Cultural differences can further complicate the transfer of sport-specific references and expressions between English and Arabic, especially when the source expression reflects practices or conventions that are not equally established in the target culture. In addition, acronyms and highly compressed technical expressions may require contextual clarification to ensure that specialized information remains accessible to Arabic readers. These challenges demonstrate that effective sports translation depends not only on lexical knowledge but also on contextual awareness, pragmatic interpretation, and sensitivity to cultural meaning.

2.7. Translation Strategies :

To examine how human translators and AI systems address the linguistic and cultural difficulties identified above, this study adopts selected translation procedures from Vinay and Darbelnet (1995) and Baker's (2018) framework of equivalence and translation strategies. Literal translation involves a close rendering of the source expression and is mainly appropriate for standardized, non-figurative terminology. Functional equivalence seeks to convey the same communicative meaning through a natural expression in the target language. Adaptation or cultural substitution modifies culture-bound references when a direct equivalent is unavailable or inappropriate. Borrowing and transliteration retain the source term, either unchanged or adapted to the Arabic writing system, particularly in the case of specialized terminology and acronyms. Finally, explicitation and paraphrase make

implicit or culturally specific information more explicit in order to improve comprehension. These strategies provide the analytical basis for comparing human and AI-generated translations in the present study.

3. Research Methodology :

This study employs a comparative mixed-methods design to examine the performance of professional human translators and contemporary AI-based translation systems in English–Arabic sports translation. The analysis is based on a corpus of 20 specialized sports items representing five categories: technical and tactical terminology, culture-specific expressions, metaphors, idioms, and acronyms or abbreviations. For each item, parallel Arabic translations are obtained from professional human translators, Google Translate as an NMT system, and ChatGPT-4o 12 as LLM-based systems. The outputs are then evaluated through a combination of quantitative and qualitative procedures. Quantitatively, the study applies selected Multidimensional Quality Metrics (MQM) criteria, particularly accuracy, terminology, and fluency, to identify and classify translation errors. Qualitatively, the analysis considers contextual appropriateness, register, stylistic effectiveness, and the preservation of figurative and cultural meaning. The results are subsequently compared across the three translation groups in order to identify recurring error patterns, preferred translation strategies, and the relative strengths and limitations of human and AI-generated translations, as designed in the following chart :

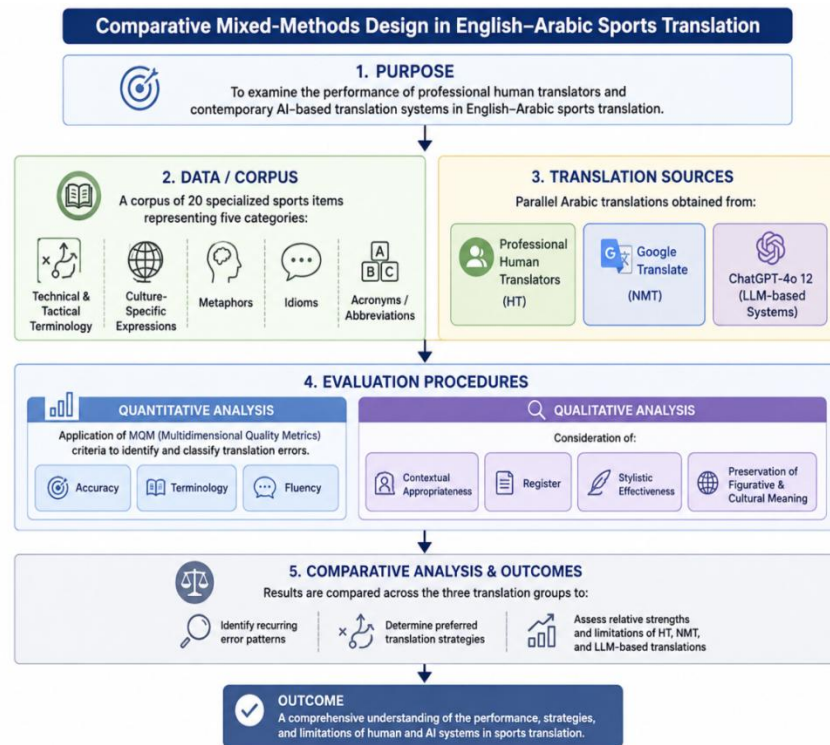


Figure 1

This methodological design allows the study to move beyond a purely numerical assessment by combining measurable translation performance with a contextual examination of the linguistic and pragmatic quality of the outputs.

3.1. Corpus Design :

The research corpus comprises **20** representative English sports terms and expressions selected from established sports communication sources, including FIFA materials and major sports media such as BBC Sport and Sky Sports. The selection reflects the specialized, metaphorical, idiomatic, and culturally embedded nature of sports discourse, which can create particular difficulties in English–Arabic translation (Al-Nuaimi, 2023; Al Kayed, 2024). To ensure balanced analysis, the corpus is organized into five categories, with four items in each: technical and tactical terminology (high press, false nine, low block, inverted winger); culture-specific expressions (Boxing Day fixture, clean sheet, derby match, benchwarmer); metaphorical language (park the bus, throw in the towel, blowing hot and cold, nail-biter finish); idiomatic expressions (the ball is in your court, hit below the belt, saved by the bell, keep one’s head above water); and proper names, acronyms, and abbreviations (UEFA, FFP, VAR, xG). This categorization makes it possible to examine how different types of sports language are handled across translation systems. For each item, parallel Arabic outputs were collected from professional human translation (HT), represented by professional English–Arabic sports translators and, where available, official FIFA Arabic documentation; Neural Machine Translation (NMT), represented by Google Translate; and Large Language Models (LLMs), represented by ChatGPT-4o and Google

Gemini. Google Translate is included as an NMT-based system, reflecting the transition of the service toward neural translation (Turovsky, 2016), while the LLM outputs were generated using the same zero-shot instruction requesting a fluent and professional Arabic translation appropriate to a sports-media context. The resulting translations were subsequently compared using a multidimensional quality perspective, allowing attention to be given to accuracy, terminology, fluency, and contextual appropriateness (Lommel et al., 2014; Mariana et al., 2015). This design provides a controlled basis for identifying differences between human and AI-generated translations and for examining the extent to which each approach preserves the semantic, cultural, and pragmatic features of sports discourse.

3.2. Analytical Criteria for Translation Evaluation :

The quality of the translations is assessed through a modified Multidimensional Quality Metrics (MQM) framework, complemented by the translation procedures proposed by Vinay and Darbelnet (1995) and Baker's (2018) approach to equivalence. The evaluation focuses on four dimensions that are particularly relevant to English–Arabic sports translation. Terminological accuracy examines whether specialized sports concepts are conveyed correctly and consistently. Contextual and cultural equivalence considers the extent to which culture-bound expressions are appropriately interpreted and adapted to Arabic-speaking audiences. Register and stylistic fluency evaluates the naturalness of the output and its compatibility with the conventions of Arabic sports journalism. Finally, figurative-language handling examines whether metaphors and idiomatic expressions retain their intended meaning, expressive force, and imagery. Following the logic of MQM, identified problems are also classified according to their potential impact on the target text. Critical errors involve substantial distortion or loss of the intended meaning; major errors include incorrect terminology, inappropriate contextual choices, or formulations that significantly affect comprehension; and minor errors refer to limited stylistic, lexical, or non-standard choices that do not substantially alter the message. This combined framework makes it possible to assess not only the formal accuracy of each translation but also its contextual, cultural, and communicative effectiveness (Lommel et al., 2014; Mariana et al., 2015).

4. Results and Analysis :

The MQM results reveal a clear hierarchy among the three translation approaches: human translators achieve the highest accuracy (98%), followed by LLMs (86%), while Google NMT records a substantially lower score (45%). The category-based analysis further shows that LLMs nearly match human performance in technical terminology and proper names (100%), but their accuracy declines when dealing with metaphorical and idiomatic language (75%), where NMT performance falls to only 25%. The 53-percentage-point gap between NMT and human translation, compared with a considerably smaller 12-point gap between LLMs and human translators, suggests that generative AI represents a credible intermediate solution for specialized sports translation. Nevertheless, the findings also indicate that

linguistic creativity, pragmatic interpretation, and cultural adaptation remain areas in which human translators maintain a clear advantage as shown in the following chart :

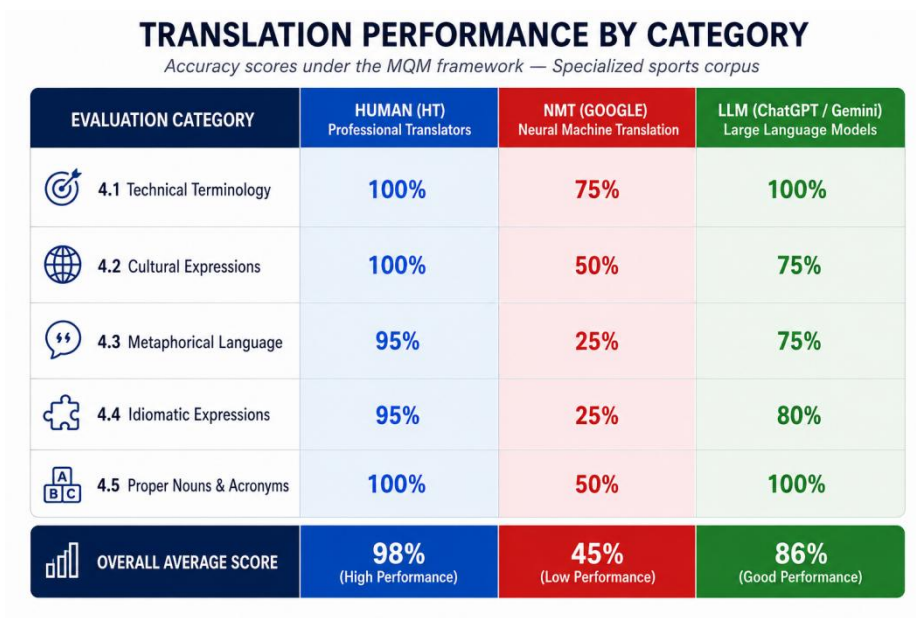


Figure 2

4.1. Accuracy of Terminology :

In technical and tactical terminology (high press, false nine, low block, inverted winger), both human translators and LLMs achieved complete accuracy, demonstrating that transformer-based models have thoroughly absorbed modern tactical glossaries as shown in the table:

Source term	Human Translation (HT)	NMT (Google)	LLM (ChatGPT / Gemini)
High press	الضغط العالي	الضغط العالي	الضغط العالي
False nine	المهاجم الوهمي	تسعة كاذبة (Literal)	✓ المهاجم الوهمي
Low block	التكتل الدفاعي المتأخر	كتلة منخفضة (Literal)	الدفاع المتأخر
Inverted winger	الجناح العكسي	جناح معكوس	الجناح العكسي

Table 1

4.2. Culture-Specific Sports Expressions :

This table presents a comparative analysis of selected English sports terms and their Arabic translations produced by human translators, Google NMT, and LLMs. It highlights differences in terminological accuracy, contextual appropriateness, and translation quality across the three approaches :

Source term	HT (Reference)	NMT (Google)	LLM (ChatGPT/Gemini)
Boxing Day fixture	جولة اليوكسينغ داي	مباراة يوم الصناديق ✗	مباريات جولة الميلاد
Clean sheet	نظافة الشباك	ورقة نظيفة ✗	شباك نظيفة
Derby match	مباراة ديربي	مباراة ديربي ✓	مباراة ديربي
Benchwarmer	لاعب بديل / دكة الاحتياط	دقيقة المقاعد ✗	(لاعب بديل) (تدفئة)

Table 2

Human translators successfully balanced loan borrowing for internationally recognized events (جولة اليوكسينغ داي) with functional equivalents for descriptive terms (نظافة الشباك for clean sheet). Google Translate produced severe literal errors, translating clean sheet as ورقة نظيفة (clean paper) and Boxing Day as يوم الصناديق (day of boxes). LLMs performed considerably better by recognizing the contextual meaning, though they occasionally produced over-explained paraphrases.

4.3. Metaphorical Language :

Analyzing figurative expressions (park the bus, throw in the towel, blowing hot and cold, nail-biter finish) demonstrated the limitations of algorithmic pattern matching when handling visual imagery :

Source metaphor	Human Translation (HT)	NMT (Google)	LLM (ChatGPT/Gemini)
Park the bus	ركن الحافلة / دفاع مكثف	إيقاف الحافلة ✗	ركن الحافلة
Throw in the towel	الاستسلام / رفع الراية	إلقاء المنشفة ✗	الاستسلام / رفع المنشفة
Blowing hot and cold	تذبذب المستوى	ينفخ حارا وباردا ✗	تذبذب الأداء
Nail-biter finish	نهاية حبس الأنفاس	نهاية قاطعة الأظافر ✗	نهاية حابسة للأنفاس

Table 3

The table shows a clear difference between the three approaches. Human translators provide the most accurate and natural equivalents, preserving the intended figurative meaning. NMT tends to translate metaphors literally, resulting in awkward or misleading expressions. LLMs perform better than NMT by capturing much of the contextual meaning, although some outputs remain partially literal. Overall, human translation remains superior, while LLMs represent a promising alternative to conventional machine translation for metaphorical sports language.

4.4. Idiomatic Expressions :

Translating sporting idioms (ball in your court, hit below the belt, saved by the bell, keep one's head above water) highlighted structural differences in syntactic register, as shown in the following table :

Source idiom	Human Translation (HT)	NMT (Google)	LLM (ChatGPT/Gemini)
Ball in your court	الكرة في ملعبك	✓ الكرة في ملعبك	الكرة في ملعبك
Hit below the belt	ضربة تحت الحزام	✗ ضرب تحت الحزام	ضربة غير رياضية/تحت
Saved by the bell	أنقذه الجرس / الموقف	تم حفظه بواسطة الجرس ✗	أنقذه الجرس في اللحظة
Keep head above...	النجاة من الغرق / الصمود	✗ إبقاء رأسه فوق الماء	الصمود أمام الصعاب

Table 4

While universal idioms (ball in your court) were correctly rendered by all engines, NMT stumbled on passive structural calques (تم حفظه بواسطة الجرس). LLMs demonstrated fluent, active-voice Arabic constructions, matching human outputs closely by providing functional non-literal translations for complex idioms such as keep one's head above water (الصمود أمام الصعاب).

4.5. Proper Names and Acronyms :

The handling of administrative and statistical acronyms (UEFA, FFP, VAR, xG) illustrated how different engines handle structural unpacking, the following table shows different translations of proper names and acronyms:

Source acronym	Human Translation (HT)	NMT (Google)	LLM (ChatGPT/Gemini)
UEFA	الاتحاد الأوروبي لكرة القدم	يويفا / UEFA ✗	(الاتحاد الأوروبي) اليويفا
FFP	قواعد اللعب المالي النظيف	FFP ✗	اللعب المالي النظيف
VAR	تقنية الفيديو المساعد (VAR)	VAR ✗	تقنية الحكم المساعد
xG	الأهداف المتوقعة (xG)	xG ✗	الأهداف المتوقعة

Table 5

As highlighted in acronym subtitling literature (Al-Hamly & Farghal, 2013; Haider, 2024), leaving raw Latin acronyms in Arabic text obscures meaning for target audiences. Human translators consistently applied the "Unpacking + Translation" strategy. NMT routinely left acronyms unedited in Latin script. LLMs performed exceptionally well, recognizing statistical terms (xG) and expanding them into accurate Arabic concepts (الأهداف المتوقعة).

4.6. Comparison Between Human and AI Translation :

The following table presents a comparative assessment of human and AI-generated translations across five key categories of sports discourse. It highlights the differences in translation performance between human translation (HT), Neural Machine Translation (NMT), and Large Language Models (LLMs), based on their accuracy and appropriateness in handling specialized, cultural, figurative, and terminological expressions.

Evaluation Category	Humain (HT)	NMT (Google)	LLM (ChatGPT / Gemini)
Technical Terminology	100%	75%	100%
Cultural Expressions	100%	50%	75%
Metaphorical Language	95%	25%	75%
Idiomatic Expressions	95%	25%	80%

Evaluation Category	Humain (HT)	NMT (Google)	LLM (ChatGPT / Gemini)
Proper Names & Acronyms	100%	50%	100%
Overall Average	98%	45%	86%

Table 6

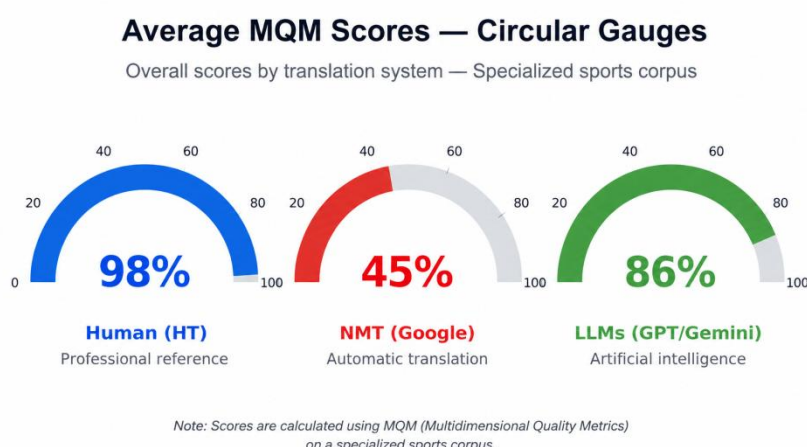


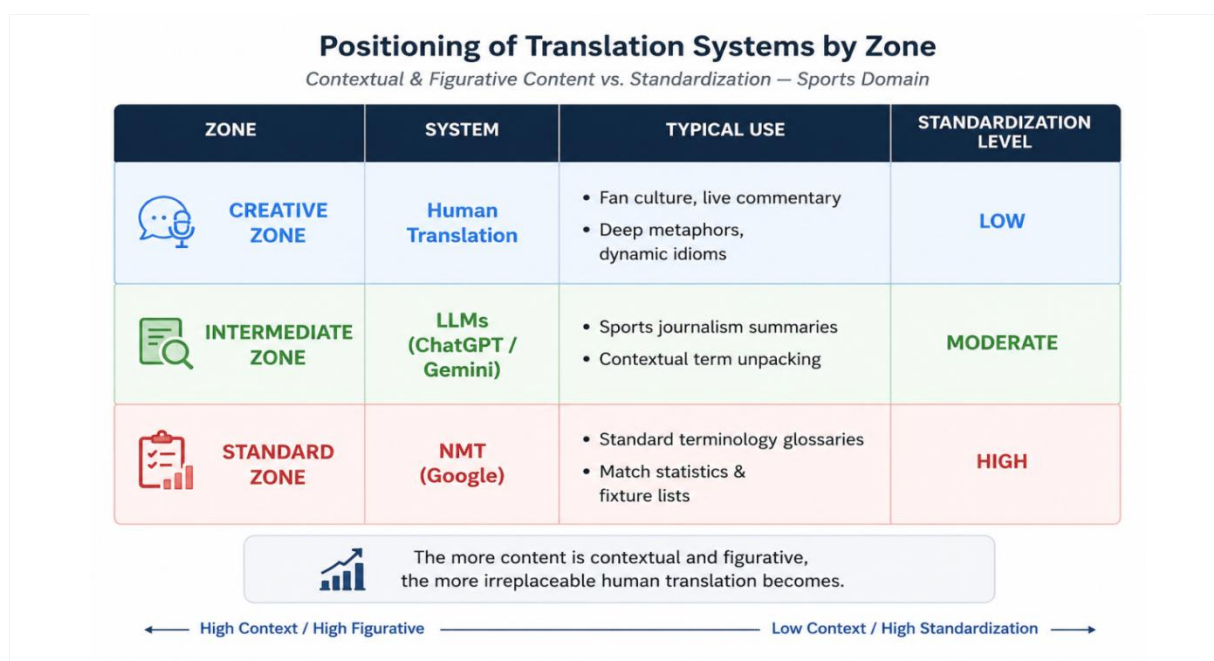
Figure 3

Synthesizing the corpus analysis reveals a clear performance hierarchy: Human Translation (98%) > LLMs (86%) > NMT (45%). While NMT remains prone to mechanical, literal breakdowns, LLMs represent a significant advancement, capturing semantic intent and applying contextual register adjustments across technical, idiomatic, and acronym categories.

5. Discussion :

5.1. Strengths and Weaknesses of AI in Sports Translation :

The empirical findings indicate that AI capability in sports translation varies based on context depth and domain specificity. This figure illustrates the positioning of human translation, LLMs, and NMT according to their ability to handle contextual and standardized sports content :

**Figure 4**

The figure shows that human translation performs best with highly contextual and figurative content, while LLMs occupy an intermediate position. NMT is more effective with standardized and predictable sports terminology. Overall, human expertise remains essential as linguistic and cultural complexity increases.

- **NMT Strengths and Weaknesses:** NMT offers unrivaled speed and low operational costs for structured, low-context data (such as fixture schedules and league tables). However, it lacks pragmatic awareness, frequently producing word-for-word mistranslations when processing culture-bound terms (Boxing Day) and metaphors (nail-biter).
- **LLM Strengths and Weaknesses:** LLMs demonstrate strong context-window analysis, natural syntactic fluency in Modern Standard Arabic, and reliable performance in expanding technical acronyms (xG, FFP). Their primary limitations include occasional over-smoothing of dramatic sports prose, subtle hallucinations, and a reliance on explicit prompting to capture localized commentary nuance.

5.2. Implications for Translators and Translator Education :

The growing fluency of LLM-based translation is gradually changing the professional profile of the English–Arabic sports translator. Rather than replacing human expertise, AI is increasingly positioning the translator as an intercultural mediator, post-editor, and quality controller responsible for reviewing machine-generated content and ensuring its accuracy, naturalness, and cultural appropriateness. This shift suggests a growing importance of machine translation post-editing and AI-assisted post-editing, particularly for terminology verification, register adjustment, and contextual refinement (Koponen, 2016; O'Brien, 2012). At the educational level, translation programs should therefore move beyond traditional approaches and develop students' AI literacy and prompt-engineering skills, while maintaining strong training in pragmatic interpretation, cultural awareness, and specialized terminology. Students should learn how to use AI tools critically rather than rely on them passively, particularly when

translating figurative, emotional, or culturally embedded sports discourse. Training in CAT tools and terminology management should also be strengthened to promote consistency in large-scale sports translation projects. In this context, the future translator is best understood not as a competitor to AI, but as a skilled professional who combines technological competence with the linguistic, cultural, and interpretive abilities that remain difficult to automate (Mellinger, 2018; Kenny, 2022).

5.3. Future Developments and Recommendations :

As artificial intelligence advances, the landscape of English–Arabic sports translation will increasingly feature domain-tuned LLMs trained on specialized parallel sports corpora, alongside multimodal engines capable of real-time commentary subtitling. To navigate this changing landscape, sports media organizations should adopt a hybrid Human-in-the-Loop (HITL) workflow deploying AI for rapid draft generation of routine match statistics while reserving creative feature stories, commentary, and culturally sensitive content for human translation specialists. Concurrently, translation educators must update university curricula by integrating AI literacy, prompt engineering, and machine translation post-editing (MTPE) alongside core pragmatic training. Finally, AI developers are encouraged to collaborate with translation scholars to fine-tune models on high-quality human translation data, improving the handling of figurative language and cultural context.

6. Conclusion :

This study demonstrates a clear performance hierarchy in English–Arabic sports translation: professional human translators achieved the highest accuracy (98%), followed by LLMs (86%) and conventional NMT (45%). While AI systems performed well with technical terminology and standardized expressions, their accuracy decreased when dealing with metaphors, idioms, and culturally embedded references. These findings support a Human-in-the-Loop approach, combining AI efficiency for routine tasks with human expertise for creative, contextual, and culturally sensitive content. They also highlight the need to integrate post-editing, prompt engineering, and AI literacy into translator training, while encouraging the development of domain-specific AI models trained on high-quality sports corpora. Overall, the future of English–Arabic sports translation appears to lie in complementary human–AI collaboration rather than human replacement.

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