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## RESEARCH ARTICLE

# Translation of Arabic Expressions of Impossibility by AI and Student-Translators: A Comparative Study

**Prof. Reima Al-Jarf**

King Saud University, Riyadh, Saudi Arabia

**Corresponding Author:** Prof. Reima Al-Jarf, **E-mail:** [reima.al.jarf@gmail.com](mailto:reima.al.jarf@gmail.com)

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## ABSTRACT

Expressions of impossibility (EIs) refer to events that never or rarely happen, things that are impossible to find, tasks that are difficult or impossible to perform, or things that are of no use. They are a kind of proverbs with a metaphorical meaning that speakers of a language use in daily interaction and communication. This study aims to compare the difficulties that Artificial Intelligence (AI) and student-translators have in translating EIs, the kinds of translation errors that both make, which direction is easier English-Arabic or Arabic-English, their translation strategies and the causes of errors for both. A sample of English and Arabic EIs was collected and translated by Microsoft Copilot (MC) and undergraduate students majoring in translation at the College of Language Silences, King Saud University. Data analysis showed that Arabic-English translation was easier for MC than English-Arabic translation. MC mostly gave literal word-for-word translation (once in a blue moon *مرة واحدة في القمر الأزرق* instead of *مرة في العمر/مرة في السنة*), which sometimes sounded meaningless and culturally awkward. The students translated fewer than 35% of the EIs correctly, compared to by 52% correct translations by MC. They left many blank. Expressions similar in both languages were easy to translate, whereas opaque expressions were more difficult (near the knuckle, ghost of a chance, dance on a land mine). Both MC and students gave more correct Arabic-English than English-Arabic translations. The most common translation strategy used by both was word-for-word translation. Paraphrase/explanation, partial, and extraneous translation were the most frequently used strategies by students. MC did not leave any expressions blank. Translation errors by students were due to lack of mastery of English, limited exposure to English idioms and proverbs, unfamiliar words, lack of background knowledge, cultural gaps, and inadequate translation competence. Although MC can explain the underlying meaning on an EI, it cannot make conceptual alignment because MC translation models prioritize direct linguistic accuracy, i.e., word-for-word translation, over natural, culturally adapted phrasing. Examples of correct and faulty translations by AI and students, translation strategies, sources of errors by both and recommendations for improvement are given.

## KEYWORDS

Expressions of impossibility, idiomatic expressions, AI translation, human translation, student translators, literal translation, word-for-word translation.

## ARTICLE INFORMATION

**ACCEPTED:** 12 July 2025

**PUBLISHED:** 02 August 2025

**DOI:** 10.32996/jcsts.2025.7.8.33

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## 1. Introduction

Expressions of impossibility (EIs) refer to events that never or rarely happen (*when hell freezes over, when pigs fly, once in a blue moon*), tasks that are difficult or impossible to perform (*like finding a needle in a haystack; a snowball's chance in hell*), people or things that are of no use (*as much use as a one-legged man at an arse-kicking contest*), and things that are impossible to find (*as rare as hen's teeth*)<sup>1</sup>. They are a kind of proverbs with a metaphorical meaning that speakers of a language use in daily interaction and communication. EIs convey emotions and impressions through metaphor. They activate the imagination. Some are funny and convey sarcasm. They are common in general use in all languages as French (*quand les poules auront des dents*, "when hens have

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<sup>1</sup> [https://en.wikipedia.org/wiki/List\\_of\\_idioms\\_of\\_improbability](https://en.wikipedia.org/wiki/List_of_idioms_of_improbability)

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teeth; and *quand les coqs pondront des œufs*, "when roosters lay eggs"), German –(*Wenn Weihnachten und Ostern auf einen Tag fallen!* "when Christmas and Easter are on the same day"); Italian (*quando gli asini voleranno* ("when donkeys will fly"); Spanish (*cuando las vacas vuelen*, "when cows fly"); Portuguese (*no dia de São Nunca* "on Saint Never's day"); Romanian (*când va zbură porcul*, "when pigs fly"); Dutch (*als Pinksteren en Pasen op één dag vallen*, "when Pentecost and Easter are on the same day"); Polish (*na święty Nigdy*, "till St. Never's Day"); Malay (*menunggu kucing bertanduk* "to wait until a horned cat walks by"); Finnish (*sitten kun lehmät lentävät*, *when cows fly*); Hungarian (*majd ha piros hó esik* "when red snow falls"); Russian (когда рак на горе свистнет, "when the crawfish whistles on the mountain"); Danish (*når der er to torsdage i én uge*, "when there are two Thursdays in one week"); Persian (وقت گل نی "when the reed plant blossoms"); Korean (해가 서쪽에서 뜰다, "Sun might rise from the West"); Chinese (太陽從西邊升起, *when the sun rises in the West*)<sup>2</sup>.

In Arabic, Els exist in Standard Arabic (SA) as well as Colloquial local dialects (CA), but not in specialized, technical language. Common people use Els quite heavily in daily speech. Historically (more than 1500 years ago), Arabs believed in three impossibles الغول والعنقاء والخل الوفي (*the ogre, the phoenix/gryphon, and the faithful friend*). Different versions of the same exist in several local Arabic dialects. For example, in the Arab Gulf States, people would say إذا حجت البقرة على قرونها "when the cow goes to pilgrimage on its horns". In Palestine, they say لما ينور الملح "when salt blossoms" or "when salt flowers"<sup>3</sup>. In Egypt, they say في المشمش "when apricots bloom" (Al-Jarf, 2024a; Al-Jarf 2024d).

Els are characterized by use of a wide range of similes and hyperbole. They activate the imagination and convey emotions and impressions through metaphor. Some are funny and convey sarcasm. Other issues related to Els were the focus of numerous studies in the literature including logical impossibility (Levy, 1971); Els and inevitability in Mari charms (Glukhova & Glukhov, 2008); types of impossibility and their treatment, impossibility in modern private law (Aksoy, 2014); the expression of modality of possibility and impossibility of infinitive constructions (Khuzina & Khairullina, (2017); forms and functions of Els in Yoruba informal interactions (Ajayi, 2022); a grammatical and rhetorical analysis of verses of impossibility in the Holy Quran (Al-Jarf, 2024); students' difficulties in translating Arabic and English Els (Al-Jarf, 2024); and Els through conditionals as a Quranic style (Aksoy, 2020);

A second group of studies investigated AI translation of proverbs, metaphors and idioms such as Arabic and English proverb translation using artificial intelligence (AI) (Hamdi, Hashem, Holbah, Azi & Mohammed, 2023); efficiency of online machine translation of English and Arabic proverbs (Jibreel, 2023); why metaphor and AI matter to each other (Barnden, 2008); a conceptual approach to natural language processing of Arabic metaphors (Alkhatib & Shaalan, 2017); paraphrasing Arabic metaphor by neural machine translation (Alkhatib, & Shaalan, 2018); can Google Translate (GT) convey the meaning of metaphor (Zajdel, 2022); translation of idiomatic expressions from Arabic into English using AI (Almaaytah, 2022); evaluation of three machine translation systems in translating idiomatic expressions (Musaad, & Al Towity, 2023); the impact of prompt formulation in AI chatbots on the translation of idioms from Arabic-to-English and English-to-Arabic (Hakami, & Abomoati, 2024); problems of translating food idioms from English to Arabic by ChatGPT with proposed solutions (Hamoud, 2024); how ChatGPT, Gemini, and GT translate English idioms to Arabic (Obeidat, Haider, Tair & Sahari, 2024); and Arabic idiom detection by deep learning and transformer-based models (Himdi, 2024).

A third group of studies compared the performance of AI and humans in translating legal texts and terminology as challenges facing human versus AI in English to Arabic translation of legal terminology at Yemeni Universities (Al-Maktary, Mohammed, Hassan, Almoughles & Almekdad, 2025); accuracy in human vs. AI translation of legal documents to Arabic (Altakhaneh, Alghathian, & Jarrah, 2025); a comparison of AI and human translation of legal texts (Moneus & Sahari, 2024); human vs machine subtitling of English legal acronyms into Arabic: (Haider & Alkhatib, 2024); AI and human translations of Qur'anic legal verses in Surah Al Ma'idah (Abdallhusein, 2025); Arabic-English translation of Sharia terms in legislative documents by AI and human (Amr, 2025); and translation of Arabic dialect poetry by human and AI (AlAfnan & Alshakhs, 2012).

Other studies explored AI and human collaboration in unveiling Qur'anic synonymy and polysemy (Albalawi, 2025); the quality of human and AI Arabic-English translation of hidden proverbs in the Holy Qur'an (Fakhrabadi & Sharifabad, 2023); and English-Arabic translation of Qur'anic Arabic puns by AI with human post-editing (Albalawi & Ghafour, 2024).

<sup>2</sup> [https://en.wikipedia.org/wiki/List\\_of\\_idioms\\_of\\_improbability](https://en.wikipedia.org/wiki/List_of_idioms_of_improbability)

<sup>3</sup> [https://en.wikipedia.org/wiki/List\\_of\\_idioms\\_of\\_improbability](https://en.wikipedia.org/wiki/List_of_idioms_of_improbability)

Furthermore, some researchers compared machine and human translations of Turkish literature into Arabic (El-Messiri, Amani Mohamed Sobhi, 2025); Arabic-English machine versus human translation of poetry (Alovedi & Hassan Al Ahdal, 2023); human vs. Gemini and ChatGPT translating of classical Arabic verse (Farghal & Haider, 2024); functionalism and accuracy in human vs. AI translation of Arabic podcast transcript (El-Naby & Aly, 2025); and challenges facing human-and AI-generated Arabic audiovisual translation of subtitles in Birdman (Al Sawi & Allam, 2024).

Additionally, some studies compared the accuracy and efficacy of AI and human translation of metaphors, ambiguities, cultural-loaded content, and post-editing such as a comparative study between ChatGPT and human translation of English proverbs into Arabic (El-Saadany, 2024); AI vs. human interpretation of metaphor in Jordanian, Emirati and Classical Arabic (Zibin, Binhaidara, Al-Shahwan & Yousef, 2025); interpretation of novel literary metaphors by humans and GPT-4 (Ichien, Stamenković & Holyoak, 2024); strategies of translating euphemistic expressions from Arabic into English by AI models and human translators (Al-Wasy & Mohammed, 2024); enhancing AI-driven Arabic to English translations with human expertise in handling ambiguities (Alqahtani, 2024); striking the balance between machine translation and human expertise in translating cultural-loaded content from Arabic to English (Ennouari & Houssaini, 2024); the accuracy of Arabic-English machine and human translation (Ibrahim, 2025); whether machine translation constitutes a new reality or a threat to professional Arabic-English translators (Muftah, 2024); English-Arabic translation by human translators vs. GT and ChatGPT (Sadiq, 2025); the efficacy of human vs AI Arabic-English and English-Arabic translation processes (Yacine, 2024); strategies employed by professional translators in post-editing Arabic-English AI-generated translations of media texts (Zayed, & Nuirat, 2024).

The literature review revealed a lack of studies that compared AI and human translation of specific metaphorical expressions such as numeral-based formulaic expressions (Al-Jar, 2023b), time metaphors (Al-Jarf, 2023c), ibn (son) and bint (daughter) fixed expressions (Al-Jarf, 2023a), om- and abu-expressions (Al-Jarf, 2017), dar (house) and bayt (home) expressions (Al-Jarf, 2022a), common names of chemical compounds (Al-Jarf, 2022d), color-based metaphorical expressions (Al-Jarf, 2019), polysemes (Al-Jarf, 2022b), binomials (Al-Jarf, 2016b), neologisms (Al-Jarf, 2010), word + particle collocation (Al-Jarf, 2022lb; Al-Jarf, 2009) and others. Therefore, this study aims to identify the difficulties that AI tools and student-translators have in translating EIs from English to Arabic and Arabic to English, which translation direction is more difficult (English-Arabic or Arabic English), the kinds of translation errors that student-translators and AI tools make, which translation strategies (literal word-for word, conceptual, partial, explanatory) AI and student translators use, and the causes of translation errors in both.

EIs are rich with nuance, wrapped in cultural, idiomatic expression, structural complexities, and/or rhetorical devices. Findings of this study will highlight subtle fault lines between AI and human translations. The types of errors that AI and student-translators make in translating EIs will benefit both translation students and instructors as they will provide them with an error typology of AI and human translation, and the strengths and weaknesses of each. The findings will inform translation training programs and help translation instructors emphasize where AI tends to falter. It will also guide AI developers to the weaknesses and failures AI has in translating specific metaphorical expressions such as EIs.

Moreover, the human translation part of the current study is based on a previous study by the author in which she assessed the difficulties that student translators have in translating EIs from English to Arabic and Arabic to English (Al-Jarf, 2024a). This study is also part of a series of studies that the author has conducted on the use of AI in English-Arabic and Arabic-English translation and research as DeepSeek, GT and Microsoft Copilot's (MC) translation of Arabic grammatical terms used metaphorically (Al-Jarf, 2025b); translation of zero-expressions by MC and GT (Al-Jarf, 2025d); AI translation of full-text Arabic research articles with a focus on educational polysemes (Al-Jarf, 2025a); AI translation of the Gaza-Israel war terminology by MC and GT (Al-Jarf, 2025c); translation of medical terms by MC and GT (Al-Jarf, 2024c); English-Arabic translation of technical terms by GT (Al-Jarf, 2021a; Al-Jarf, 2016a) and Arab instructors' views on students' assignments and research papers generated by AI (Al-Jarf, 2024b).

## **2. Methodology**

### **2.1 The Subjects**

Subjects of the current study consisted of 37 translation students in their third year of the translation program at the College of Language Sciences (CLS), King Saud University, Riyadh, Saudi Arabia. The students were majoring in Arabic, English and English-Arabic translation. They studied 37 hours of English language course (Listening, Speaking, Reading, Writing, Vocabulary, Grammar, Editing and Revising, Academic Writing, Morphology and Syntax), 13 hours of linguistics courses (Introduction to Linguistics, Text Linguistics, Pragmatics and Semantics, Discourse Analysis, 4 hours of Language and Culture courses; and Use of Dictionaries in in Translation); 35 hours of translation courses (Introduction to Translation, General Translation from English to Arabic, General Translation from Arabic to English, Computer-Assisted, Financial and Economic, Political and Media, Medical, Scientific and Technical, Legal, Islamic, Literary, Translation, Problems of Translation, and a Translation Project); 8 hours of interpreting courses (Simultaneous, Consecutive, and bilateral); and 8 hours of Arabic language courses (Academic Writing, Stylistics Applications and Syntax). All the students are native speakers of Arabic with English as their second language.

In the Vocabulary course, translation students study a sample of general English idioms, binomials and collocations. In the translation courses, they practice translating idioms, binomials, collocations, and metaphorical expressions which they occasionally encounter in the texts they are translating in various domains. In addition, the students never received any direct instruction in the usages and meanings of Arabic and English EIs and the contexts in which they are used, whether in the translation or Arabic language courses that they take.

## 2.2 AI Assistant Used

Microsoft Copilot<sup>4</sup> (MC) is a chatbot developed on the basis of a large language model (LLM). It is an AI-powered code completion tool that uses the Microsoft Prometheus model, built upon OpenAI's GPT-4 foundational LLM to generate code snippets based on the context of the code being written. It is Microsoft's primary replacement for the discontinued Cortana, which in turn has been fine-tuned using both supervised and reinforcement learning techniques. On February 7, 2023, Bing Chat was released, then became a built-in feature of Microsoft Bing and Microsoft Edge. It is an AI companion designed to assist users with a variety of tasks, offering support across different Microsoft products and platforms. It acts as a digital companion, providing information, entertainment, and inspiration. It translates text using machine learning algorithms. Its conversational interface style is like that of ChatGPT. It leverages advanced AI in understanding user requests and providing relevant responses, suggestions, and even creating images. It can help with writing, brainstorming, coding, searching, and more. It is now integrated into apps like WORD, Excel, PowerPoint, and Teams, allowing users to draft documents, analyze data, create presentations, and collaborate more effectively. It helps with tasks like summarization of information, generation of creative content, and automation of repetitive actions, making users more productive. It is accessible on PCs, Macs, and mobile devices. Through Bing and Edge, it allows consistent support across different devices and workflows.

## 2.3 Sample of EIs

A sample of 95 Arabic and 60 English EIs was collected from several online resources and some Arab informants, in addition to the author's own collection as a native speaker of Arabic and a translation instructor. The Arabic sample covers EIs that are common in Standard as well as some Arabic dialects spoken in some Arab countries. To be included in the sample, each EI should refer to something that cannot be done, attained, fulfilled, or can never happen. It should imply a paradox in a person, situation, action having seemingly contradictory qualities or something that is counterfactual, hypothetical, or contrary-to-fact scenarios. It should also be a statement that is seemingly contradictory or opposed to common sense as in *If pigs could fly, we'd have bacon rain*; لما البقرة تج على قرونها (when the cow goes to pilgrimage on its horns); البيضة الديك the rooster's egg; يمشي على شوك walk on thorns; لو if the sky falls on earth; يبلط البحر to tile the sea; ما يصير مية blood never becomes water. Verses of impossibility in the Holy Quranic are not included in this study.

The Arabic sample was verified by two colleagues at the Arabic department to make sure that the sample includes EIs used as proverbs by native-Arabic speakers only and not mere phrases. In addition, the two professors verified the comparisons, categorization and translations of English and Arabic EIs. Discrepancies in the comparison, judgments, categorization and translations were solved by discussion.

## 2.4 Comparison of English and Arabic EIs

EIs in both Arabic and English were compared and classified into the following:

- 1) EIs that are identical in their meaning (conceptual basis) and wording (linguistic form) in both English and Arabic as in: *castles in air* الهواء قصورا في; *cry over spilt milk* يبكي على اللبن المسكوب; *hard to swallow* زوري; *when heaven falls on earth* الأرض تنطبق السما على; *when salt glows; grasping at straws* بقتشة; *a needle in a haystack* ابرة في; *beyond your wildest dreams* ولا في; *when salt blossoms* لما ينور الملح; *يا مدور الأبره بأرض إلهيام* ابرة طاحت في بحر, كومة قش يتضارب/يتشاجر مع خياله; *fighting your shadow* نجوم السما اقرب لك الاحلام - بعيد عن اسنانك -
- 2) EIs that are the same in their conceptual basis, but are different in their linguistic form. as In: *pie in the sky* أضغاث أحلام; *when pigs fly* في المشمش/ لما تطير; *get blood from a stone* اضرب الأرض تطلّع بطيخ; *on cloud nine* في سابع سما طائر من; *never/not in a million year* سنة 100 بعد; *not to have a chance in hell* عشم ابليس في الجنة; *twelfth of never* من رابع المستحيلات / المستحيلات
- 3) EIs that exist in English only but have no equivalent in Arabic as in the following examples: *When hell freezes over; clear as mud; cold hell; cold day in hell; dance on a land mine; eat one's cake and have it too; lightning in a bottle; on a cold day in July.*

<sup>4</sup> [https://en.wikipedia.org/wiki/Microsoft\\_Copilot](https://en.wikipedia.org/wiki/Microsoft_Copilot)

<sup>3</sup> [https://en.wikipedia.org/wiki/Google\\_Translate](https://en.wikipedia.org/wiki/Google_Translate)

- 4) **Els that exist in Arabic only but have no equivalents in as in the following**  
*show someone the stars in daylight*; when the donkey goes up (climbs) the minaret; *لما تحج البقر على قرونها* when the cow goes to pilgrimage on its horns; *bird's milk*; *العين ما تعلی علی الحاجب* an eye cannot be higher than the eyebrow; *يبلط البحر* tile/pave the sea; *حتى يدخل الجمل في سم الخياط* until the ship robe goes through the needle hole; *even if you go back in your mother's womb, i.e., even if you become a foetus again*; *لو يطير* if he flies; *beyond the sun, father than the sun*; *blow in a pierced waterskin*; *لما يشيب الغراب* when the crow greys; *Satan's dream of heaven*; *an eye cannot defeat an awl*; *على اسنانك* too far from your teeth; *you may ride the highest of your horses*; *even if you plant yourself as a tree*; *even if he goes to the seventh heaven*; *when you see the lobe of your ear. Here, the Arabic Els were literally translated in order for the reader to understand the analogy and paradox herein.*

5) **Culture-specific Els as** *يا مأمنة للرجال يا مأمنة المية في الغربال* trusting a man is like trusting water in a sieve; *عنزة لما يشيب الغراب* when the crow greys like Satan dreaming of heaven. *it is a goat even if it flies* blow in a pierced waterskin; *قلنا لهم تيس قالوا احلبوه* we said it is a he goat, they said milk it; *the three impossibilities: the ogre, the phoenix and the faithful friend*; *لما تحج* when the cow goes for pilgrimage on its horns; *Flying pig*; *Pie in the sky*; *Wild goose chase*; *Dance on a land mine*; *Eat one's cake and have it too*; *Ghost of a chance*; *When pigs fly*; *Dodged a bullet*; *Curve ball* (from baseball terminology).

6) **Multiple Arabic Els with the Same Meaning**

  - *can an apothecary fix what time has spoiled*; *a dog's tail cannot be straightened* *إيش تعمل الماشطة في الوجه العكر* how can a beautician beautify an ugly face; *ايه يعمل الترقيع في الثوب* a can patching fix a worn-out garment;
  - *like a needle in a haystack*; *ايرة في كومة قش* like a needling in a sea; *they all denote futile efforts and the impossibility of achieving something.*
  - *we say it is a bull/he goat, they said milk it*; *it is a goat even if it flies: showing a paradox.*
  - *If you seek molasses from a mongoose' tail, you will never taste honey*; *if you seek butter from a dog's coccyx*; *يا مستنى السمنة من دهن النملة عمرک* ; *until the camel sees the bend in its neck*; *when you see your ear's lobe.*

7) **Lexical Structure of Arabic Els**

  - *Animals: Bird: لبن العصفور* ; *Bull: نقول ثور يقولوا احلبوه* ; *Cow: لما تحج البقر على قرونها* ; *Dog: ذيل الكلب ما يتعدل* ; *Fish: يبيع حتى يلح* as a mule in a teapot; *Camel: لما يطلع الحمار على المئذنة* ; *Donkey: لما يشيب الغراب* ; *Crow: لما يشوف الجمل عوجة رقبته او سنامه* , *الجمل في سم الخياط* ; *Goat: قلنا لهم تيس قالوا احلبوه* , *عنزة ولو طارت* ; *Rooster: يا ظالب الدّيس من ديل التمس يحزم عليك دوقه العسل* ; *Mongoose: يا ظالب الدّيس من ديل التمس يحزم عليك دوقه العسل* ; *the rooster's egg.*
  - *Food & drink: yoghurt never becomes milk again*; *اليبيضة ما تكسر حجر* ; *if the sky is going to rain dumplings, it would have had dough clouds*; *لبن العصفور* ; *في* ; *If you pound water, you will get water.*
  - *Body parts: العين ما تعلی علی الحاجب* ; *العين ما تقاوم مخرز* ; *لما تشوف حلمة ودنک* لما تحج البقر على قرونها; *May we go to pilgrimage when people come back from it, i.e., after it is over.*
  - *Sun, sky, stars: العين الشمس* / *نجوم السما اقرب لك*; *cannot cover the sun with a sieve*; *في سبع سما* ; *if he goes to the seventh sky/heaven*; *as calling for prayer in a ruined place.*
  - *Call for prayer: يؤذن في مألة* ; *As Satan's aspiration to be in heaven.*
  - *Hell: None.*

8) **Meanings Implied in Arabic Els**

  - **Challenge:** *if he goes to the seventh sky*; *لو يطير* if he flies; *paralysis cannot be treated*; *even if he/she goes back to his/her mother's womb*; *too far from your teeth*; *يبلط* لو يتزرع شجرة; *اعلى ما فى خيلک اركبه* ; *البحر*

- **Futile efforts:** الرماد blowing in ashes; كومة قش looking for a needle in a haystack; يغرف من الحمار حمار ولو بين الخيول scooping the sea water with a cup; قربة مقطوعة في قربة مثقوبة blowing in a pierced ; beat cold iron. يضرب في حديد بارد a donkey is a donkey even if grows among horses; ربي it is a goat even if it is a goat even if it flies.
- **Stubbornness:** عنزة ولو طارت we told them it is a bull, but they said milk it; ثور قلنا لهم تيس/ثور قالوا احلبوه if it flies.
- **Incongruity:** بيضة ما تكسر حجر an egg does not break a stone; ثور نقول ثور يقولوا احلبوه we told them it is a bull, but they say milk it; العين ما تقاوم مخزr the eye cannot be higher than the eyebrow; العين ما تغلب على الحاجب the eye cannot defy the awl
- Things that are **impossible to fix or cannot be done:** فالح لا تعالج even if you pound the water, it will remain water; يغرف من البحر بالفنجان scooping the sea with a cup ; حتى يلج الجمل في سم الخياط when the shop rope goes through the needle hole.
- **Funny:** العسل يحزم عليك ذوق العسل like seeking molasses from a mongoose' tail; اللي إيش تعمل a woman with hair will not gain more than what a bald woman has gained ; شو بدى اترجى منك يا سفرجلة وكل عضة بغصة how can a beautician beautify an ugly face ; العكر what can I expect from a quince when I choke with every bite

## 2.5 The EI Translation Test for Student Translators

The students took an EI test that consisted of 24 English and 20 Arabic EIs that were randomly selected from the EI sample, and which covered EIs in all categories. The items were presented in isolation. The test instructions specified what the test items were. The students were asked to translate each Arabic EI to English and each English EI to Arabic. The students were not allowed to use any kind of dictionary, whether paper, mobile apps or online. The students were given open time to respond to the test. The test items are presented below.

### ***The Arabic Subtest***

أبعد من عين الشمس، حتى يلج الجمل في سم الخياط، الشمعة لا تغلي إبريق الشاي، عمره الدم ما يصير فيه، في المشمش، لما تشوف حلة  
ودنك، نجوم السما اقرب لك، يبكي على اللبن المسكوب، يريه النجوم في عز الظهر، ابرة طاحت في بحر، إنك لا تجنى من الشوك العنب، حلم  
ابليس في الجنة، عمر الرايب ما يبق حليب، عين الشمس ما تغطى بغربال، كمن يغرف من البحر بالفنجان، لبن العصفور، لما يشيب الغراب،  
يبحث عن ابرة في كومة قش، يد وحدة ما تصفق، ينفخ في قربة مقطوعة.

## ***The English Subtest***

*teach a goldfish to play the clarinet, the first of never, when pigs fly, wild goose chase, never in a million years, as difficult as nailing jelly to a tree, dance on a land mine, like squeezing water from a stone, grasping at straws, lick your own elbow, pie in the sky, not to have a chance in hell, on cloud nine, to catch lightning in a bottle, when salt blossoms, once in a blue moon, a snowball's chance in hell, as rare as hen's teeth, eat one's cake and have it too, ghost of a chance, if the sky falls, we shall catch larks, near the knuckle, a vicious cycle.*

## 2.6 The Copilot EI Translation Sample

The same 44 EI test items given to the students to translate were also translated by MC in order to facilitate the comparison between AI and human translations. MC was given the EIs in isolation. No context was provided. After the translation of EIs, MC was asked to refine some of the translations based on meaning rather than direct wording. The author also asked MC to give reasons for its correct and faulty translations and which direction is easier and why.

### 2.7 Analysis of the Student and AI Responses to the EI Items

The students' and MCs translations of the same EIs were marked by the author. To be considered correct, each Arabic and English EI had to be translated by a correct equivalent, a literal translation or explanation. Mistranslations were compiled and subjected to further analysis. Translation strategies were classified into: (i) leaving the answer blank (avoidance); (ii) literal, word for word translation; (iii) paraphrase (explanation); (iv) partial translation, and (v) providing extraneous equivalents.

Results of the students' and MC translations are reported quantitatively and qualitatively.

## 2.8 Reliability

Reliability of the students' EI test scores was calculated using the Kuder-Richardson 21' formula which estimates the internal-consistency of the responses to the test items from a single administration of the test. The reliability coefficient of the test scores was .71. Inter-rater reliability was calculated by having a colleague who taught translation mark a sample of students' answers and MC translations and by comparing both analyses. There was a 96% agreement between the two scorers in identifying meanings and expressions available in both English and Arabic and those that are available in one language only and classifying the faulty responses into translation strategies. Disagreements were solved by discussion.

### 3. Results

#### 3.1 Students' responses to the test items

Data analysis showed that student translators in the current study left many EIs blank (without providing any kind of translation). The typical student left 55% of the English test items and 40% of the Arabic test items blank, with a range of 12% to 90% blank items on the English subtest and 0 to 95% blank items on the Arabic subtest. Examples of EIs that the students failed to translate correctly or left blank (without any response) are: العنب لا تجنى من الشوك العنب, *as difficult as nailing jelly to a tree*, *dance on a land mine*, *ghost of a chance*, *grasping at straws*, *near the knuckle*, *wild goose chase*.

Student-translators in the current study could translate fewer than 35% of the test items correctly. EIs similar in both languages were easy to translate, whereas opaque EIs were more difficult to translate. Some translations were correct in meaning but incorrect in form. Example of EIs that are difficult to translate are *as difficult as nailing jelly to a tree*; *a snowball's chance in hell*; *near the knuckle*; *ghost of a chance*; *dance on a land mine*; *as rare as hen's teeth*; *eat one's cake and have it too*; *on cloud nine*; *once in a blue moon*; *pie in the sky*; العنب لا تجنى من الشوك العنب; *you cannot reap grapes from thorns*; الشمس ما تتغطى بغربال *the sun cannot be covered with a sieve*; العين ما تقاوم مخز *the eye cannot defy an awl*; حلم إبليس في الجنة; لو يرجع في بطن امه *when heaven falls on earth*; ينفخ في قربة; حلم إبليس في الجنة; لو يرجع في بطن امه *when salt blossoms*; يبخت عن ابرة في كومة قش; مقطوعة; حتى يلج الجمل في سم الخياط; لبن العصفور; نجوم السما اقرب لك; وفي المشمش; لما يشيب الغراب; يبخت عن ابرة في كومة قش; مقطوعة; يبكي على اللبن المسكوب.

Additionally, the students had more difficulty in translating EIs from English to Arabic than Arabic to English. They responded to 60% of the items on the Arabic test of which 35% were correctly translated and 25% were incorrectly translated. They responded to 45% of items on the English test, with 20% correctly translated and 25% incorrectly translated. EIs that are identical in English and Arabic were correctly translated. In some cases, the students gave a variety of correct responses (translations) as in the following examples: كمن يغرف يبكي على اللبن المسكوب; يبخت عن ابرة في كومة قش; وفي المشمش; يد وحدة ما تصفق; ابرة طاحت في بحر *castles in air*; من البحر بالفنجان *when heaven falls on earth*; ابرة في كومة قش *when salt blossoms*; يبكي على اللبن المسكوب *beyond your wildest dreams*; ما ينبلع/ ما يهضم; ما ينزل من زوري *hard to swallow*; يتعلق بقشة *grasping at straws*; ولا في الاحلام بعيد عن اسنانك *ghost of a chance*.

Word for word translation was the most common strategy as in the following examples: *you cannot cover the eye of the sun*; عين الشمس ما تتغطى بغربال *blood cannot become water*; عمره الدم ما يصير ميه *cry over the milk he spilled*; ابعد *Satan has no hope of going to heaven, Satan will not go to heaven*; حلم إبليس في الجنة / عشم / طمع / امل: *family relationship is stronger than friendship, your brother is closer to you than your friends*; العنب لا تجنى من الشوك العنب *do good things to be rewarded with good things, if you do bad things you will not get good results*. Thirdly, partial translation as in *on cloud nine* فوق الغيوم; *teach a goldfish to play the clarinet* لا. *wild goose chase* صيد الاوزة العنب; صيد الاوز في البراري *ghost of a chance* لا يحاول خوفا من الشبح, شبح المحاولة, الخوف من الشبح.

#### 3.2 MC Translation of EIs

MC could translate 52% of the EIs in the sample correctly (English + Arabic). Examples of MC correct translations are: عمر الدم ما *Blood never turns into water (family ties remain strong and cannot be erased)*; نجوم السما اقرب لك *The stars in the sky are closer to you (what you want is completely out of reach)*; يبخت عن ابرة في كومة قش *Searching for a needle in a haystack (an extremely difficult or impossible search)*; يبكي على اللبن المسكوب *Crying over spilled milk (regretting what is lost when it's too late)*; يريه النجوم *In apricot season (never going to happen)*.

Examples of incorrect translations by MC are: *lick your own elbow* (شيء مستحيل فعله) عمر الرايب ما يبقى حليب; *once in a blue moon* (شيء نادر جدًا) مرة في القمر الأزرق; *like squeezing water from a stone* (محاولة مستحيلة) إمساك الماء من الحجر; *ghost of a chance* (فرصة ضئيلة جدًا) شبح فرصة; *the first of never* (شيء لن يحدث أبدًا) أول يوم من اللاوجود; *to catch lightning in a bottle* (تحقيق شيء شبه مستحيل) إمساك البرق في زجاجة.

While chatting with MC regarding the translation of EIs, MC asked if I would like MC to refine some of the translations based on meaning rather than direct wording, but it gave correct matches to some EIs and incorrect matches to others. Examples of correct matches by MC are: *dance on a land mine* > *walking on thorns, doing sth dangerous*; *lick your own elbow* > *لما* *when you see your ear's tip—something impossible*; *wild goose chase* > *السعي وراء سراب (chasing a mirage, i.e., futile pursuit)*; *when pigs fly* > *لما يشيب الغراب (when the crow turns grey, i.e., never)*; *never in a million years* > *ولا بعد مليون سنة not even after a million years*. Examples of incorrect matches by MC are: *To catch lightning in a bottle* > *اليد إمساك البرق في كف (catching lightning in the palm, i.e., highly difficult)*; *near the knuckle* > *كلام على حافة الأدب (speech on the edge of decency, i.e., sth*

*inappropriate*); *not to have a chance in hell* > فرصة في العدم (*a chance in nothingness – meaning impossible*); *a snowball's chance in hell* > حتى يلج الجمل في سم الخياط (*until the camel enters the eye of the needle, i.e., impossible*); *as difficult as nailing jelly to a tree* > مثل مسك الماء باليد (*like holding water in your hand (impossible to grasp)*).

MC mostly gave literal word-for-word translation as in the following examples: *The stars in the sky are closer to you; once in a blue moon* مرة واحدة في القمر الأزرق *instead of* السنة (مرة في العمر/مرة في السنة), *on cloud nine* السحابة التاسعة *instead of* طائر من الفرح/طاير في السماء, which sometimes sounded meaningless and culturally awkward.

Like student translators, expressions similar in both languages were easy for MC to translate, whereas opaque expressions were more difficult for MC. Word for word translation was the most common strategy for MC as well. Unlike students, paraphrase, explanation, partial, and extraneous translation strategies were not used by MC. MC did not leave any EIs blank either. Examples of easy EIs for both Student-translators and MC are: *حلم ايليس*; *لبن العصفور*; *كمن يغرف من البحر بالفنجان*; *يبكي على اللبن المسكوب*; *never in a million years*; *on cloud nine*. Examples of EIs that are difficult for both student-translators and MC are *as difficult as nailing jelly to a tree*; *dance on a land mine*; *ghost of a chance*; *near the knuckle*; *wild goose chase*.

### 3.2 Sources of translations errors by student-translators and AI

Students' faulty responses to the Arabic and English EIs test showed lack of background knowledge, lack of proficiency and inadequate linguistic and translation competence in both English and Arabic especially English. Items that were left blank, extraneous equivalents, literal translations, paraphrase and explanatory equivalents reflect comprehension problems and lack of sufficient vocabulary knowledge. In other words, the students looked at the surface structure and ignored the underlying meaning of an EI. They looked at each EI as consisting of isolated words, not as a whole unit with a fixed metaphorical or underlying meaning. Many student-translators in the sample seemed to have semantic problems with the English EIs as they could not access the meaning of some lexical items and hence the overall meaning of an EI as in the following examples: *near the knuckle*, *a snowball's chance in hell*, *as difficult as nailing jelly to a tree*, *dance on a land mine*, *as rare as hen's teeth*. Although the lexical items in EIs such as (*on cloud nine*, *pie in the sky*, *eat one's cake and have it too*, *ghost of a chance*) are familiar, the students could not access the underlying meaning of the whole EI due to inadequate cultural competence. They had lexical problems with Arabic EIs as in *لما يشيب الغراب*, *لما تشوف حلمة ودنك*, *لما يشيب الغراب*, *حتى يلج الجمل في سم الخياط*. These weaknesses reflect unfamiliarity with some English EIs, the meaning of lexical items within them and the English equivalents to some Arabic lexemes in some of the Arabic EIs. The error data showed no interlingual errors resulting from transfer from L1 to L2 or vice versa. In most cases the weaknesses are not due to pragmatic, nor cultural factors.

Although MC can explain the underlying meaning of an EI, it cannot make conceptual alignment between English and Arabic because MC translation models prioritize direct linguistic accuracy, i.e., word-for-word translation, over natural, culturally adapted phrasing. MC has difficulty finding cultural equivalents or adapting a phrase using Arabic expressions with similar meaning. As MC reported, the Arabic-to-English translations felt stronger because more direct equivalents exist and Arabic idioms are more universally adaptable. MC added that Arabic has more vivid, proverbial expressions for impossibility (*لما يشيب الغراب* > *When the crow turns white*), making translation into English smoother. Arabic idioms often use universal imagery in Eng (*stars*, *needles*, *milk*) that translates more naturally. *برة في كومة قش* > *needle in a haystack* is identical in both languages). MC added that English idioms are more fixed, so when translating them into Arabic, MC has to invent approximations (*فطيرة في السماء* > *pie in the sky*, which sounds odd in Arabic). English idioms often rely on Western cultural references (*cloud nine*, *pie in the sky*) that don't exist in Arabic, forcing creative replacements.

When the author asked MC about its faulty and correct translations of EIs, it said that English idioms often rely on Western cultural references (*cloud nine* & *pie in the sky*) that do not exist in Arabic, forcing creative replacements. Many Arabic idioms about impossibility already have well-known English counterparts English idioms (*برة في كومة قش* > *needle in a haystack*), however, often do not have perfect one-to-one Arabic matches, so MC had to follow a linear word-for-word translation (*a snowball's chance in hell* > *فرصة كرة الثلج في الجحيم*), or give a mismatch (*حتى يلج الجمل في سم الخياط* > *When pigs fly*) which are not common Arabic phrases.

## 4. Discussion

Findings of this study showed that the students gave correct translations to fewer than 35% of the EIs on the test, whereas MC translated 52% of the EIs correctly. Students left many items on the test blank, but MC did not leave anything blank. Both MC and students gave more correct Arabic-English than English-Arabic translations of EIs. The most common translation that both used was word-for-word translation. Paraphrase/explanation, partial, and extraneous translation were the frequently used strategies by students. MC mostly gave literal word-for-word translation (*once in a blue moon* مرة واحدة في القمر الأزرق *instead of* السنة (مرة في العمر/مرة في السنة), which sometimes sounded meaningless and culturally awkward.



These findings are partially consistent with findings or prior studies in the literature that compared AI and human translation of metaphors, proverbs, idioms, puns, ambiguity, culturally loaded Arabic-English content and so on. Unlike findings of the current study, Zibin, Binhaidara, Al-Shahwan & Yousef (2025) found that human translators excelled in recognizing figurative language, assessing cultural specificity, and adapting translation strategies to audience background. In translating culturally embedded English proverbs, human translators effectively localized meaning, preserved metaphoric function, and even adapted structural forms to fit Arabic proverb conventions. As in the current study, AI (ChatGPT) often rendered proverbs literally, resulting in unclear or misleading equivalents. For example, *"Don't cry over spilled milk"* was translated into a phrase lacking both idiomatic force and pragmatic clarity (El-Saadany, 2024). Additionally, human translators applied adaptive techniques, including modulation, explication, and footnotes to preserve meaning while ensuring cross-cultural accessibility, whereas AI tools frequently failed to account for culturally loaded Arabic-English content such as regional idioms, religious references, and socio-cultural markers, leading to semantic dilution or misrepresentation (Ennouari & Houssaini, 2024). Moreover, human translators were more capable of preserving tone, speaker intent, and audience orientation, especially when translating informal speech, humor, or idioms. By contrast, AI-generated translations were prone to semantic distortions, and missed nuanced pragmatic cues embedded in spontaneous oral language (El-Naby & Aly, 2025). Human translations showed greater contextual relevance, metaphorical depth, and cultural sensitivity whereas GT, and ChatGPT outputs were faster than human translation, they suffered from semantic ambiguity, syntactic misalignment, and occasional misinformation (Sadiq, 2025).

As in the current study, AI produced literal, nonsensical, or unmarked translations. Dialectal variation (Jordanian, Emirati, and Classical Arabic) further compounded errors, with Emirati idioms being particularly challenging (Zibin, Binhaidara, Al-Shahwan & Yousef, 2025).

Compared to other prior studies by the author, the difficulties that student translators have and the strategies that they use in translating EIs are similar to those detected in translating other types of idiomatic and fixed expression as *ibn* (son) and *bint* (daughter) metaphorical expression (Al-Jarf, 2023a), English and Arabic numeral-based formulaic expressions (Al-Jarf, (2023b), English and Arabic time metaphors (Al-Jarf, 2023c), Arabic and English *dar* (house) and *bayt* (home) expressions (Al-Jarf, 2022a), English and Arabic binomials (Al-Jarf, 2016b), Arabic common names of chemical compounds (Al-Jarf, 2022d), English and Arabic polysemes (Al-Jarf, 2022b), and English word + preposition and word + particle collocations (Al-Jarf, 2022lb; Al-Jarf, 2009).

Compared to other prior studies on AI translation of a variety of terms and metaphorical expressions by the author, MC gave correct translations to 68.6% of medical terms in the study sample, 43% of the grammatical terms used metaphorically, 29% of the Gaza-Israel terms, and 29% of the zero idiomatic expressions (Al-Jarf, 2024c; Al-Jarf, 2025c; Al-Jarf, 2025b; & Al-Jarf, 2025d). GT was inconsistent in translating English technical terms with varying prefixes, roots combined with the same suffix, compounds and blends (Al-Jarf, 2021a; Al-Jarf, 2016a). In translating Arabic full-text educational articles to English, GT had difficulty giving correct equivalents to educational polysemous words that have general and specialized meanings and two or more English equivalents (Al-Jarf, (2025a). All AI tools (MC, GT, & Deepseek) that the author used in translating terminology and other types of metaphorical expressions tended to give literal, word for word translations, not conceptual equivalents to Arabic terms and metaphorical expressions used in a particular domain.

## **5. Recommendations and Conclusion**

To improve students' ability to translate metaphorical expressions from English to Arabic and Arabic to English, this study recommends adding English EIs to the English vocabulary and Problems of Translation courses that the students take in the translation program. It also recommends raising students' awareness of the weaknesses that AI has in translating metaphorical expressions from Arabic to English and vice versa. Translation students should use MC with caution and should first check the meaning of metaphorical expressions in an English and/or Arabic dictionary in order to conceptualize their meaning before translating them. They should double check and post-edit AI translation especially in the case of metaphorical expressions. Sadiq, (2025) proposed integrating error analysis exercises into translation instruction and treating AI as a translation assistant, not a standalone solution.

Moreover, prior studies emphasized the importance of human input, collaboration, revision and post-editing of AI translation output. For example, Muftah (2024) emphasized that professional translators play an essential role in post-editing AI translation outputs, especially for texts requiring ethical, cultural, and functional interpretation. Since AI cannot perform reliably, cultural mediation and idiomatic substitution, human supervision is needed (El-Saadany, 2024). Albalawi & Ghafour (2024) added that post-editing is essential for preserving reverence and nuance in sacred texts because AI is not inherently equipped to parse Qur'anic puns that rely on theological and linguistic intertextuality. AI could generate literal translations with surface-level meaning, but it frequently misses layered rhetorical functions and cultural resonance, in which case human editors are needed to restore interpretive depth, especially in verses that employed double entendre or sound-based irony. Furthermore, Hamoud (2024)

indicated that a tiered post-editing approach to ChatGPT translation of food idioms which involves lexical adaptation, cultural localization, and idiomatic substitution must be followed because ChatGPT lacks the contextual and figurative sensitivity needed for idiom translation, even though it could assist with draft generation. El-Naby & Aly (2025) argued that functional and communicative equivalence requires human insight after AI tools are used for initial transcription.

Since AI translations undermine meaning, especially when dealing with idiomatic expressions or dialectal variations, human-AI collaboration, guided by refined evaluation rubrics, can dramatically improve quality in high-stakes or culturally nuanced translation tasks (Alqahtani, 2024). Likewise, Ennouari & Houssaini, (2024) emphasized the need for a collaborative model, in which human translators guide AI systems toward greater cultural sensitivity and communicative fidelity. Shahwan & Yousef (2025) advocated human-AI collaboration to improve cognitive and communicative metaphor processing and the inclusion of dialectal training data, and annotated metaphors.

To improve MC translation of metaphorical expressions, this study recommends building a good bilingual dictionary, and an algorithm to automatically extract English/Arabic bilingual dictionaries from parallel texts existing in Internet archives must be used. Internet archives contain a lot of parallel documents. A good MT system requires a good English-Arabic parallel corpus. To construct a good parallel corpus from Internet archives, we must have good English-Arabic and Arabic-English bilingual dictionaries. A team of specialists, computational linguists, & lexicographers should collaborate to revise, add and supervise formulaic expressions and terms included in English-Arabic Dictionaries.

Finally, comparisons of AI and humans' translation of other types of metaphorical expressions such as numeral-based formulaic expressions, time metaphors, ibn (son) and bint (daughter) fixed expressions, om- and abu-expressions, dar (house) and bayt (home) expressions, color-based metaphorical expressions common names of chemical compounds, word + particle collocation and binomials are urgently needed and are still open for further investigation by researchers in the future.

**Conflicts of Interest:** The author declares no conflict of interest.

**ORCID ID:** <https://orcid.org/0000-0002-6255-1305>

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