اسم مشتق من الذكوة وهي الجمرة الملتهبة والمراد
بالذكوات الربوات البيض الصغيرة المحيطة بمقام أمير
المؤمنين علي بن أبي طالب{عليه السلام}
شبهها لضيائها وتوهجها عند شروق الشمس عليها لما فيها
موضع قبر علي بن أبي طالب {عليه السلام}
من الدراري المضيئة
{در النجف}فكأنها جمرات ملتهبة وهي المرتفع من الأرض،
وهي ثلاثة مرتفعات صغيرة نتوءات بارزة في أرض الغري وقد
سميت الغري باسمها، وكلمة بيض لبروزهاعن الأرض.وفي رواية
إنّها موضع خلوته أو إنّها موضع عبادته وفي رواية أخرى
في رواية المفضل عن الإمام الصادق {عليه السلام}قال:
قلت:يا سيدي فأين يكون دار المهدي ومجمع المؤمنين؟
قال:يكون ملكه بالكوفة، ومجلس حكمه جامعها
وبيت ماله ومقسم غنائم المسلمين مسجد
السهلة وموضع خلوته الذكوات البيض

بسم الله الرحمن الرحيم

جمهورية العراق وزارة التعليم العالي والبحث العلمي دائرة البحث والتطوير	Republic of Iraq Ministry of Higher Education & Scientific Research Research & Development Department

الرقم: ب ت ح ع/ ٥٩٧ — No.:
التاريخ: ١٦/١/٢٠٢٢ — Date:

ديوان الوقف الشيعي / دائرة البحوث والدراسات

م/ مجلة الذكوات البيض

السلام عليكم ورحمة الله وبركاته ...

إشارة الى كتابكم المرقم ١٠٤٦ والمؤرخ ٢٠٢١/١٢/٢٨ والحاقاً بكتابنا المرقم ب ت ٥٧٤٤/٤ في ٢٠٢١/٩/٦ ، والمتضمن أستحداث مجلتكم التي تصدر عن الوقف المذكورة أعلاه ، وبعد الحصول على الرقم المعياري الدولي المطبوع وانشاء موقع الكتروني للمجلة تعتبر الموافقة الواردة في كتابنا أعلاه موافقة نهائية على أستحداث المجلة.

... مع وافر التقدير

أ.م.د. حسين صالح حسن
المدير العام لدائرة البحث والتطوير / وكالة
٢٠٢٢/١/١٦

نسخة منه إلى:
- قسم الشؤون العلمية / شعبة التأليف والنشر والترجمة / مع الأوليات.
- الصادرة.

مهند ابراهيم
١٠ / كانون الثاني

إشارة إلى كتاب وزارة التعليم العالي والبحث العلمي / دائرة البحث والتطوير
المرقم ٥٠٤٩ في ٢٠٢٢/٨/١٤ المعطوف على إعمامهم
المرقم ١٨٨٧ في ٢٠١٧/٣/٦
تُعدّ مجلة الذكوات البيض مجلة علمية رصينة ومعتمدة للترقيات العلمية.

الذكوات البيض

مجلة علمية فكرية فصلية محكمة تصدر عن
دائرة البحوث والدراسات في ديوان الوقف الشيعي

العدد (١٦)
السنة الرابعة المجلد الثاني
ربيع الأول ١٤٤٦ هـ أيلول ٢٠٢٥م

العدد (١٥) السنة الرابعة ذي الحجة ١٤٤٦ هـ حزيران ٢٠٢٥ م
رقم الإيداع في دار الكتب والو ثائق (١١٢٥)
الرقم المعياري الدولي ISSN 2786-1763

الذكوات البيض

العدد (١٦) السنة الرابعة ربيع الأول ١٤٤٦ هـ – أيلول ٢٠٢٥ م

الذكوات البيض

مجلة علمية فكرية فصلية محكمة تصدر عن
دائرة البحوث والدراسات في ديوان الوقف الشيعي

العدد (١٦) السنة الرابعة ربيع الأول ١٤٤٦ هـ - أيلول ٢٠٢٥ م

العنوان الموقعي
مجلة الذكوات البيض
جمهورية العراق
بغداد /باب المعظم
مقابل وزارة الصحة
دائرة البحوث والدراسات
الاتصالات
مدير التحرير
٠٧٧٣٩١٨٣٧٦١
صندوق البريد / ٣٣٠٠١
الرقم المعياري الدولي
ISSN ١٧٦٣-٢٧٨٦
رقم الإيداع
في دار الكتب والوثائق(١١٢٥)
لسنة ٢٠٢١
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دليل المؤلف .....

١–أن يتسم البحث بالأصالة والجدّة والقيمة العلمية والمعرفية الكبيرة وسلامة اللغة ودقة التوثيق.

٢– أن تحتوي الصفحة الأولى من البحث على:

أ. عنوان البحث باللغة العربية .

ب . اسم الباحث باللغة العربي، ودرجته العلمية وشهادته.

ت . بريد الباحث الإلكتروني.

ث . ملخصان: أحدهما باللغةِ العربية والآخر باللغةِ الإنكليزية.

ج . تدرج مفاتيح الكلمات باللغة العربية بعد الملخص العربي.

٣–أن يكونَ مطبوعًا على الحاسوب بنظام(office Word) ٢٠٠٧ أو ٢٠١٠) وعلى قرص ليزري مدمج (CD) على شكل ملف واحد فقط (أي لا يُجزّأ البحث بأكثر من ملف على القرص) وتُزوَّد هيأة التحرير بثلاث نسخ ورقية وتوضع الرسوم أو الأشكال، إن وُجدت، في مكانِها منَ البحثِ، على أن تكونَ صالحةً مِنَ الناحيةِ الفنيَّة للطباعة.

٤–أن لا يزيدَ عدد صفحات البحث على (٢٥) خمس وعشرين صفحة من الحجم (A4).

٥. يلتزم الباحث في ترتيب وتنسيق المصادر على الصفية APA

٦–أن يلتزم الباحث بدفعِ أُجُور النشر المحدَّدة البالغة (٧٥،٠٠٠) خمسة وسبعين ألف دينار عراقيّ، أو ما يعادلها بالعملات الأجنبية.

٧–أن يكونَ البحثُ خاليًا مِنَ الأخطاءِ اللغوية والنحوية والإملائيَّة.

٨–أن يلتزم الباحث بالخطوط وأحجامِها على النحو الآتي:

أ. اللغة العربية: نوع الخط (Arabic Simplified) وحجم الخط (١٤) للمتن.

ب . اللغة الإنكليزية: نوع الخط (Times New Roman) عناوين البحث (١٦). والملخصات (١٢)

أما فقرات البحث الأخرى؛ فبحجم (١٤) .

٩–أن تكونَ هوامش البحثِ بالنظام الأكتروني(تعليقات ختامية) في نهاية البحث. بحجم ١٢.

١٠–تكون مسافة الحواشي الجانبية (٢,٥٤) سم،والمسافة بين الأسطر (١) .

١١–في حال استعمال برنامج مصحف المدينة للآيات القرآنية يتحمل الباحث ظهور هذه الآيات المباركة بالشكل الصحيح من عدمه، لذا يفضّل النسخ من المصحف الالكتروني المتوافر على شبكة الانترنيت.

١٢–يبلَّغ الباحث بقرارِ صلاحيَّة النشر أو عدمها في مدَّةٍ لا تتجاوز شهرين من تاريخ وصولهِ إلى هيأةِ التحرير.

١٣–يلتزمُ الباحث بإجراءِ تعديلات المحكّمين على بحثهِ وفق التقارير المرسلة إليهِ وموافاةِ المجلة بنسخةٍ معدَّلةٍ في مدَّةٍ لا تتجاوزُ (١٥) خمسة عشر يومًا.

١٤–لا يحق للباحث المطالبة بمتطلبات البحث كافة بعد مرور سنة من تاريخ النشر.

١٥–لاتعاد البحوث الى أصحابها سواء قُبلت أم لم تُقبل. الباحث: مهند حمزة حميد

١٦–تكون مصادر البحث وهوامشه في نهاية البحث، مع كتابة معلومات المصدر عندما يرد لأول مرة.

١٧–يخضع البحث للتقويم السري من ثلاثة خبراء لبيان صلاحيته للنشر.

١٨–يشترط على طلبة الدراسات العليا فضلاً عن الشروط السابقة جلب ما يثبت موافقة الأستاذ المشرف على البحث وفق النموذج المعتمد في المجلة.

١٩–يحصل الباحث على مستل واحد لبحثه، ونسخة من المجلة، واذا رغب في الحصول على نسخة أخرى فعليه شراؤها بسعر (١٥) ألف دينار.

٢٠–تعبر الأبحاث المنشورة في المجلة عن آراء أصحابها لا عن رأي المجلة.

٢١–ترسل البحوث إلى مقر المجلة – دائرة البحوث والدراسات في ديوان الوقف الشيعي بغداد – باب المعظم)

أو البريد الإلكتروني:(hus65in@Gmail.com) (offreserch@sed.gov.iq) بعد دفع الأجور في مقر المجلة

٢٢–لا تلتزمُ المجلة بنشر البحوث التي تُخلُّ بشرطٍ من هذهِ الشروط .

مجلة علمية فكرية فصلية محكمة تصدر عن دائرة البحوث والدراسات في ديوان الوقف الشيعي

محتوى العدد (١٦) المجلد الثاني

الذكوات البيض

Issues in TranslatingTechnical Terms in Software Documentation: A Comparative Study between Arabic and English

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Tikrit University/College of Arts/Trans-lation Department

Abstract:

As technology and communication rapidly evolve across the globe, the significance of technical terms in both educational and professional settings has increased substantially. These terms facilitate the clear and concise explanation of complex ideas and new tools, thereby enhancing mutual understanding among researchers and experts. Familiarity with these terms and their meanings is essential for interpreting contemporary scientific topics, particularly those related to technology and digital issues. Translating technical terms from English into Arabic often encounters challenges such as lexical gaps, inconsistent or outdated standard equivalents, and intricate morphological structures. These issues compel translators to make choices between borrowing, calquing, or inventing new terms. Furthermore, cultural challenges arise, including the predominance of English in technical fields juxtaposed with efforts to maintain the linguistic purity of Arabic. This dynamic significantly influences how technical terms are translated and which equivalents are chosen. Consequently, this study investigates the cultural ambiguity inherent in translating technical expressions from an English context into Arabic. Its primary objective is to identify the main difficulties that Iraqi translators face when translating technical terms in software documentation from English to Arabic. The study also aims to assess the effectiveness of various translation methods in accurately conveying technical terminology between the two languages, examine the impact of these terms on the translation and the surrounding context, and discover how they are linguistically and culturally adapted for the target audience.The study examines 5 technical terms from the selected texts, translated by 5 MA candidates in the translation department at the College of Arts, University of Tikrit. Through this analysis, the study identifies key areas of ambiguity associated with the use of technical expressions. Through this analysis, the study identifies key areas of ambiguity associated with the use of technical expressions. The findings illustrate the difficulties encountered by

translators in conveying both the linguistic meaning and cultural significance of technical terms. This study provides informative perspectives on the realm of technical language, emphasizing the importance of cultural awareness in the field of translation studies.
Keywords: Technical terms, software documentation, applied study, cultural ambiguity, adaptation.

المستخلص:

مع التطور السريع للتكنولوجيا والاتصالات في جميع أنحاء العالم، زادت أهمية المصطلحات التقنية بشكل كبير في الأوساط التعليمية والمهنية على حد سواء. وتيسر هذه المصطلحات الشرح الواضح والموجز للأفكار المعقدة والأدوات الجديدة، مما يعزز التفاهم المتبادل بين الباحثين والخبراء. إن التعرف على هذه المصطلحات ومعانيها أمر ضروري لتفسير الموضوعات العلمية المعاصرة، ولا سيما تلك المتعلقة بالتكنولوجيا والقضايا الرقمية. وغالباما تواجه ترجمة المصطلحات التقنية من الإنجليزية إلى العربية تحديات مثل الثغرات المعجمية، والمعادلات القياسية غير المتسقة أو القديمة، والهياكل المورفولوجية المعقدة. وتجبر هذه القضايا المترجمين على الاختيار بين الاقتراض، أو الترجمة الحرفية، أو اختراع مصطلحات جديدة. وعلاوة على ذلك، تنشأ تحديات ثقافية، بما في ذلك هيمنة اللغة الإنجليزية في المجالات التقنية جنبا إلى جنب مع الجهود المبذولة للحفاظ على النقاء اللغوي للغة العربية. تؤثر هذه الديناميكية بشكل كبير على كيفية ترجمة المصطلحات التقنية واختيار ما يعادلها. وبالتالي، تبحث هذه الدراسة الغموض الثقافي المتأصل في ترجمة التعبيرات التقنية من سياق إنجليزي إلى اللغة العربية. وهدفه الأساسي هو تحديد الصعوبات الرئيسية التي يواجهها المترجمون العراقيون عند ترجمة المصطلحات التقنية في وثائق البرمجيات من الإنكليزية إلى العربية. وتهدف الدراسة أيضا إلى تقييم فعالية طرق الترجمة المختلفة في نقل المصطلحات التقنية بدقة بين اللغتين، ودراسة تأثير هذه المصطلحات على الترجمة والسياق المحيط بها، واكتشاف كيف يتم تكييفها لغويا وثقافي للجمهور المستهدف. وتدرس الدراسة ٥ مصطلحا تقنيا من نصوص مختارة، قام بترجمتها ٥ مرشحين للحصول على درجة الماجستير في قسم الترجمة في كلية الآداب بجامعة تكريت. ومن خلال هذا التحليل، تحدد الدراسة مجالات الغموض الرئيسية المرتبطة باستخدام التعبيرات التقنية. وتوضح النتائج الصعوبات التي يواجهها المترجمون في نقل كل من المعنى اللغوي والأهمية الثقافية للمصطلحات التقنية. تقدم هذه الدراسة وجهات نظر إعلامية حول مجال اللغة التقنية، مؤكدة على أهمية الوعي الثقافي في مجال دراسات الترجمة.

الكلمات المفتاحية: المصطلحات التقنية، توثيق البرمجيات، دراسة تطبيقية، الغموض الثقافي، التكييف.

1.1 Introduction

Technical text: This kind of text stands apart from others due to its well-organized, clear, and accurate language, where it lays out a variety of methods or steps to carry out an activity. Nevertheless, technical texts frequently include subjects tied to scientific, technological, and industrial expertise. In simpler terms, technical texts encompass all materials where scientific knowledge is utilized to implement it in practice. Therefore, the goal of the text is

to inform the reader, providing guidance or techniques on how to perform a specific task or process. This is why we often refer to manuals and instructions as technical texts (Byrne, 2006).

According to (Trosborg, A. 1997) the following is a list of common traits that help us identify this kind of text from others:

Clear content: To achieve the goal of providing objective and accurate information, it's essential that the text is crafted clearly and precisely, leaving no room for doubts and ensuring each concept is articulated accurately. In this regard, technical texts should consistently use a denotative vocabulary throughout.

Variety of topics: Another key aspect of technical texts is that they can be crafted in numerous genres or categories, as they relate to a wide range of fields.

The language found in this kind of text is defined by being clear and exact. This ensures that every word and idea stays true to its purpose and, at the same time, helps prevent any information that could cause uncertainty or misunderstanding regarding what is being described. Frequently, new terms associated with the processes being discussed may surface. (Wright, S. E., & Budin, G. (Eds.), (2001).

Particularly in scholarly circles, technical translation has long been considered the ugly duckling of translation. Technical translation is sometimes consigned to the bottom tier of translation activity and is considered little more than an exercise in specialized vocabulary and subject knowledge. It is not very fascinating or attractive, and it certainly lacks the glitter and cachet of other sorts of translation. In fact, some people fear and despise technical translation, like a contemporary barbarian of the linguistic world, because of these factors, especially topic knowledge. It's evident that technical translation has historically been seen as the literary equivalent of "real" translation. The literature on translation theory has mostly ignored this industrial and vocational form of translation (Byrne, 2006).

1.2 Characteristics of Technical Texts:

The Terminology and jargon employed for technical and scientific translation are identical. A technical or scientific document usually utilizes precise terminology, which places the text in the realm of denotation (specifically, the link between the word and the object it represents) at the expense of connotation (the concealed and metaphorical significance of a word, which often possesses a poetic essence). Technical and scientific terms remain stable despite natural events that shape language, instead evolving only due to advancements and new technologies: in simpler terms, they are updated by appropriate standard bodies.In contrast to everyday and literary language, technical and scientific language is isomorphic in vocabulary: every concept has a single matching term, ensuring that every concept A represented by a term A1 in one language will match an expression B in another language (Juan Sager, 1990).

For example: The term "Scrum"

"Is a structure for Agil software"

It translated to Arabic as:

مجموعة من المهاجمين يشكلون دائرة ويدفعون بعضهم البعضفي محاولة السيطرة على الكرة.

All this complicates the understanding of the technical text: therefore, a novice reader approaching a technical text even if it's simplified or a user manual, must engage in a significant task of intralingual translation: shifting from technical language to everyday words.Conversely, the employment of precise terms within a field simplifies comprehension (and translation) once you have mastered or gained access to the terminology utilized. Professional technical translators must carefully consider these factors in their work and modify their methods to become familiar with the jargon of any text. This is an essential step to ensure the best possible results for any technical or scientific translation: conveying the same message in a different language (Juan Sager, 1990).

The main goal of translating technical manuals is to provide content that is clear and accurate. Errors in translation can cause incorrect use, leading to product damage, personal harm, or even

legal consequences. As highlighted by the American Translators Association (ATA), accuracy in technical translation is essential. (Adelina Rossano, 2025) For example, the term EFC "Embedded file system" is " It is an encrypted security zone file on the device". The translator should be careful when he translates this term.

According to (Brucar Translations, 2024) Technical documents are frequently very detailed and intended for audiences who depend on them for precise instructions or guidelines. Unclear terminology can result in expensive errors, safety risks, and reduced user trust. Consistency in terminology throughout technical materials is crucial for:

Clarity: Guarantees that the reader comprehends the content without confusion or misinterpretation. Efficiency: Conserves time during creation, review, and usage, as standardized terms remove the need for cross-checking.

Professionalism: Showcases the company's dedication to quality and detail, fostering trust among stakeholders.

Achieving consistency comes with its difficulties, particularly in technical areas where language can overlap or change. Translators need to manage:

Field-Specific Jargon: Technical papers often contain specialized terms that might lack direct translations in the target language.

For example: The term "Router"

:Has no equivalence in Arabic so we adapt it into Arabic Language as "راوتر"

Client Preferences: Various companies may use unique terms or favor certain expressions.

Document Variability: Extensive projects usually consist of several documents, making it essential to unify terminology throughout all writings.

1.3 Challenges in Technical Translation

According to (Byrne, 2006) Technical translation is the act of turning specialized documents, like manuals, patents, or medical reports, from one language into another. It guarantees that technical

terms, instructions, and information are faithfully communicated in the target language. This service makes the content clear and comprehensible for its intended audience. In contrast to general translation, which addresses everyday language, technical translation concentrates on industry-specific terminology. Translators must possess a solid grasp of the subject matter to ensure that the significance of technical terms and concepts is maintained. For instance, a minor mistake in a machine operation manual could result in equipment damage or safety hazards.

Here are some language-specific challenges that translators frequently face:

1. Complexity of Terminology: Different languages may present variations in their technical terminology. Translators need to recognize these inconsistencies and use suitable translations or adaptations to maintain accuracy. Contextual understanding and reference to specialized dictionaries become crucial in tackling these challenges. Also technical texts often utilize intricate sentence structures involving subordinate clauses, technical details, and exact modifiers. Translators must effectively express the intended meaning while preserving grammatical correctness in the target language. They may need to rearrange sentences or employ appropriate equivalents to ensure clarity and readability.

2. Cultural Nuances: The differences in language and culture between English and Arabic greatly affect how translation is done. These differences come from changes in grammar, vocabulary, sentence structure, idioms, cultural norms, and ways of seeing the world (Ali & Al-Rushaidi, 2017). To achieve accurate and effective translation, it is important to understand and work through these differences. English and Arabic have distinct sentence structures and grammar rules. Arabic, a Semitic language, has a complicated system of roots, patterns, and changes, while English typically follows a subject-verb-object order (Akki & Larouz, 2021). Translators must be adept at rearranging sentences and changing word order to correctly express the intended meaning. They need

a strong grasp of both languages and cultures, as well as excellent interpretive and communication skills. By recognizing these differences and using the right translation strategies, translators can overcome challenges posed by linguistic and cultural gaps, leading to successful communication across cultures (Al Madhoun & Elyan, 2020). Both languages have unique words and idiomatic phrases that may not translate directly. Translators must understand cultural subtleties and context to find appropriate equivalents or express the meaning using different phrases or explanations. The cultures of Arabic and English speakers have unique historical, religious, and social backgrounds, leading to different cultural references and symbols. Therefore, translators need to be culturally aware and knowledgeable to ensure that the audience understands these references correctly (Al Madhoun & Elyan, 2020). They must be mindful of these differences to effectively share messages and avoid misunderstandings or causing offense. Simple word-for-word translations often do not capture the intended meaning or cultural nuances, highlighting the importance of making thoughtful translation choices that consider both language and culture (Almijrab, 2020). Technical texts can include cultural references or examples that require adaptation to align with the target language and culture. Translators must be attentive to cultural nuances and modify the content accordingly to ensure the text is culturally appropriate and understandable to the target audience.

3. Writing Style: Each language has its distinctive conventions regarding writing style, voice, and register. Translators must take these aspects into account to guarantee the translated text aligns with the desired tone and style of the original. Adapting the writing style and tone while preserving accuracy is vital for effective communication.

4. Idiomatic Expressions: Idiomatic expressions are prevalent in technical texts, and translating them literally can result in confusion or loss of meaning.

Translators must recognize idiomatic expressions and find suitable equivalents or rephrase them to convey the intended meaning accurately in the target language.

5. Borrowed Terms: The vocabulary of any language can be split into native and non-native words. Non-native words are known as loanwords or borrowed words. In language studies, the term 'borrowing' refers to the process of taking a linguistic element from one language and adding it into another. This can happen in the form of lexical items, which are recognized as loanwords and are considered non-native until they are fully integrated into the borrowing language's vocabulary.

1.4 Strategies for Translating technical terms

The adaptation strategy have used in this study to discuss the translation process and how terms change according to this strategy .First, we present the theoretical framework of this model and outline its main principles. Then, we explain the relationship between adaptation and software terminology, highlighting the importance of this strategy, particularly when translating technical terms that may not have direct equivalents in the target language. This approach allows for translations that are more culturally and contextually appropriate, aligning with the expectations and standards of the target audience.

Vinay and Darbelnet (1995: 31) point out that to translate any textual content from source language (SL) into Target language (TL) the translators can undertake techniques of translation, i.e. "direct translation" (or as they at first known as literal translation method) and "indirect translation" (or 'indirect' method). These phrases elicit the department among literal' and "free" strategies of translation submitted with the aid of using different scholars. However, the two strategies encompass seven strategies, three for direct method and four for indirect one (Munday, 2016: 89). These seven strategies can be tackled in elements withinside the following segment beginning from the nearest to SL and ending with the nearest to TL.

Table :1.1: Vinay and Darbelnet strategies.

Direct strategy	Oblique strategy
Borrowing: Is the primary manner withinside the direct translation strategy, the closest one to the SL, and the best method of all in translation. Basically, it's far the procedure of(direct) moving the shape of SL word(s) to be merged with inside the TL lexical items (i.e. without translating it), together with right names, cultural terms, inventions, ...etc. So, the translator, through this manner, fills the lexical lacuna withinside the TL (El-Farahaty, 2015: 60). According to Vinay and Darbelnet (1995: 32), the main producer of borrowed expressions is the interpretation system itself. Generally, this phenomenon exists in nearly languages, and the borrowed phrases are from diverse languages (Aissi, 1987: 135).	**Transposition**: For Vinay and Darbelnet (1995: 36), transposition means replacing one word class for another while keeping the meaning of the message intact. There are two kinds of transposition, namely obligatory and optional transposition. Obligatory transposition occurs when the target language lacks other alternatives due to its system, requiring the subject to make some grammatical adjustments to be clear and acceptable to the target audience. On the other hand, optional transposition is the subject's decision, and they can use it when it enhances the quality of the translation (Vinay & Darbelnet, 2000).
Calque: It's used to refer to one-to-one translation of the morphemic factors of the overseas phrase or word into the equivalent (semantically matching) morphemes in any other language. According to Vinay and Darbelnet (1995: 32), calque' is a shape of literal translation of phrases and morphemes of the SL expression to the TL. it represents a unique sort of borrowing in which the SL expression or shape is transferred in a literal translation" (Munday, 2016: 89).	**Modulation**: "Modulation" is used at the semantic level to indicate a change in "meaning," characterized by differing semantic perspectives and the translator's viewpoint (Vinay and Darbelnet, 1995: 36). Similarly, Newmark (1988: 88) describes Vinay and Darbelnet's "modulation" process as "a variation through a change of viewpoint, perspective, and often the category of thought."
Literal: Vinay and Darblenet (1995: 33) characterize the literal translation method as "the straightforward shifting of a SL text into grammatically and idiomatically suitable TL text." To them, it is a "word for word" translation. This method is particularly relevant between languages that are from the same family and share the same culture, such as Italian and French, where the translator maintains the linguistic structure of TL. "محمد طالب مجتهد" 'Mohamed is a Clever student'	**Equivalence**: 'Equivalence' clearly refers to languages that utilize varying cultural or stylistic methods to express the same circumstance. Vinay and Darbelnet (1995: 38) believe that equivalence is particularly essential when translating idioms, proverbs, clichés, nominal phrases, and adjectival expressions (i.e. focusing on how to transmit the message's impact instead of the image it portrays).
	Adaptation: It is the most flexible type of translation methods widely applied in various literary pieces (i.e. poetry, novels, plays,... etc.). Vinay and Darbelnet (1995: 39) assert that this method can be effectively employed when the ST pertains to a unique culture that lacks equivalent terms in the TT (when a scenario in the SL is absent in the Target culture. In this regard, the translator must create an alternative situation in the TT that conveys the same concept as found in the ST, and the text needs to be rewritten. (Munday, 2016: 91; El-Farhaty, 2015: 62).

1.5 Research Methodology

This study used a mixed approach that combined both qualitative and quantitative methods to thoroughly analyze the data. The qualitative method provides a detailed explanation and interpretation of the topic being studied, focusing on understanding its meaning without using numerical data (McDowell & Maclean, 1998: 15). On the other hand, the quantitative method offers a statistical analysis of the topic by showing how often it occurs or is used, using numbers and percentages. The combination of both qualitative and quantitative methods provides a richer, more detailed understanding of the research problem. We used 5 general technical terms to represent the study sample, These terms were distributed to (10) MA candidates in the Department of Translation, College of Arts, University of Tikrit to translate them into Arabic. As for organizing the samples for analysis, the source sentence is identified by using the abbreviation (SS), followed by their respective numbers (e.g., SS1, SS2, etc.).The translated sentences were labeled as (TS) and numbered sequentially (e.g., T1, T2, T3, etc.).

1.6 Data Analysis

The data analysis began with the presentation of the source sentences that included technical expressions, along with their translations and the context of each of the original technical expression was also explained to clarify how it was used within specific domain, these contextual explanations helped to clear up terms that might carry different meanings in non-technical settings. These translations were then examined using the linguistic and translation models outlined in this study. The linguistic model, based on klaus Pohl's (2001) framework for technical terminology, was employed to determine the meanings of the technical expressions. The translation model, following Vinay and Darbelnet's (1995) approach to direct and oblique translation, was used to explore the strategies and techniques employed by translators in rendering these technical expressions. Subsequently, a discussion was held regarding the technical expressions and their translations to assess the suitability of the translations in relation to the original technical meanings. Finally, a table summarizing these findings was

provided after the discussion of each technical expression, along with a recommended translation deemed appropriate for the relevant texts.

SS1: Developers must report any bug encountered during the testing phase to the issue tracker.

:T1

يجب على المطورين الإبلاغ عن أي خطأ برمجي يصادفهم خلال مرحلة الاختبار إلى متعقب المشكلات.

:T2

المطورين يجب أن يكتبوا كل العوائق التي تواجه الاختبار إلى متتبع المشكلات.

:T3

يجب على المطورين الإبلاغ عن أي خلل يواجههم خلال مرحلة الاختبار الى المشكلة.

:T4

يجب على المطورين الإبلاغ عن أي حشرة يتم العثور عليها خلال مرحلة الاختبار في متتبع المشكلات.

:T5

من الضروري أن يبلغ المطورون عن أي حشرة تحدث أثناء الاختبار إلى تتبع المشكلات.

Context: The term "bug" is used in the context of software development to denote a problem that occurs during program implementation, and these errors are often discovered during system testing or when used by users.

The "BUG" may result in the result of the case of code, or a defect in the program logic, or even to collect with operating systems or browsers. "Bug" is a well-known term in software development and refers to a technical flaw. However, it needs to be clarified when used in non-technical contexts.This lack of ambiguity can be confusing for non-technical users because in common language it means "insect

Analysis: In terms of translation, it can be observed that T4 andT5 failed to provide an appropriate Arabic translationfor the term bug. These subjects followed a directtranslation strategy, applying literal translation, andrendered the term as "حشرة". This mistranslationlikely stems from a misunderstanding of the actualmeaning of the expression. The use of "حشرة" hascaused cultural ambiguity, as this term is nottypically used in Arabic to refer to technical issues insoftware. This indicates a lack of subject-matterknowledge.

On the other hand, T1 who used the equivalence translation strategy, succeeded in delivering an accurate Arabic translation. This

work reflects an adequate understanding of the term's intended meaning. Similarly, T3 employed the adaptation strategy, using culturally appropriate references, and they also succeeded in conveying the correct meaning.

As for T2 used an oblique translation strategy byapplying the modulation procedure, changing themeaning from "خطأ برمجي" to "عوائق". This shiftbroadens the term's scope to include non-software-related issues, such as hardware or time-basedproblems. However, in Arabic, "عوائق" is nottypically used in technical contexts to referspecifically to software bugs.

Table 6.1: the analysis of the first technical term (bug)

SS	Meaning in SL	Strategy and procedure of translation	Cultural appropriateness
Bug	خطأ برمجي	T1: Oblique: Equivalence	+
		T2: Oblique: Modulation	-
		T3: Oblique: Adaptation	+
		T4: Direct: literal	-
		T5: Direct: literal	-

The Suggested Translation

Based on the analysis of this expression (bug), the following translation is suggested for it:

يجب على المطورين الإبلاغ عن أي خطأ برمجي يُكتشف خلالمرحلة الاختبار الى متعقب المشكلات.

SS2: Mock objects are used in unit tests to simulate real dependencies.

T1:

تستخدم كائنات وهمية خلال الإختبارات لمحاكاة الأجزاء الحقيقية من النظام.

T2:

استخدمت مواضيع غير مهمة في اختبار الوحدات لمحاكاة الاعتماد الحقيقي.

T3:

تستخدم الكائنات الوهمية في اختبارات الوحدة لمحاكاة الاعتماديات الحقيقية.

T4:

تستخدم الكائنات الوهمية في اختبارات الوحدة لمحاكاة التبعيات الحقيقية.

T5:

يتم استخدام كائنات وهمية في اختبارات الوحدة لمحاكاة التبعيات الحقيقية.

Context: Mock is used in the context of software testing, particularly in unit testing. is a fake object created to simulate the real objects or units on which the unit in question depends, without

having to invoke these actual depensions. The word "mock" in English has many meanings: mockery or sarcasm (e.g., mocking someone). A mock test (e.g., mock exam), so when translating into Arabic we should explain the context to be more understandable.
Analysis: In terms of translation, (1) failed to give anappropriate Arabic translation because it was basedon oblique translation by applying modulation, translating (mock to وهمية), and (2, 3, 4 and 5) failedin giving the appropriate translation because theyfollowed the direct translation by applying literaltranslation procedure these translations created acultural ambiguity that may confuse the target reader because these translations are not appropriate for thetechnical context.

Table 6.2: The analysis of the second technical term (Mock).

SS	Meaning in SL	Strategy and procedure of translation	Cultural appropriateness
Mock	محاكاة، مزيفة، افتراضي، مقلدة	T1: Oblique: Modulation	–
		T2: Direct: literal	–
		T3: Direct: literal	–
		T4: Direct: literal	–
		T5: Direct: literal	–

The Suggested Translation

Considering the translations of the expression "Mock " and how well they match its true meaning, the following translations are recommended:

.يتم استخدام كائنات افتراضية لمحاكاة التبعيات الحقيقية دونالحاجة إلى تنفيذها فعليًا

SS3: A deadlock occurs when two processes wait indefinitely for each other to release resources.

T1:

.يحدث تعلق المشكلة عندما تنتظر عمليتان بعضهما البعض إلىأجل غير مسمى لإطلاق الموارد

T2:

.تحدث حالة جمود حين لا تتحرك أي عملية بسبب انتظار متبادل

T3:

.يحدث الجمود عندما تنتظر عمليتان إلى اجل غير مسمى لبعضهما البعض لإطلاق الموارد

T4:

.تحدث ازمة توقف عندما تفشل عمليتان في المضي قدماً بسبب التنازع على الموارد

T5:

يحدث شلل في التنفيذ عندما لا تستطيع العمليات الإفلات منحالة الانتظار المتبادل.

Context: A deadlock is a state of computer systems (especially in operating systems and synchronized programming) that occurs when two or more processes stop advancing because each is waiting for a resource under the control of the other. It's so important because a "deadlock" causes a system or software to crash, it may be difficult to detect or resolve, so programmers and designers must be careful of it and plan to avoid it from the outset.

Analysis: The following subjects—(2 and 3)—used the direct translation strategy by adopting the literal translation procedure. These translations succeeded in conveying the appropriate meaning of the technical term. In contrast, subjects (1, 4, and 5) employed the oblique translation strategy by adopting modulation procedures. These translations failed to convey the correct technical meaning, which may lead to misunderstanding of the expression's true intent.

Table 6.3: The analysis of the third technical term (Deadlock).

SS	Meaning in SL	Strategy and procedure of translation	Cultural appropriateness
Deadlock	الجمود، توقف متبادل	T1: Oblique: Modulation	–
		T2: Direct: literal	+
		T3: Direct: literal	+
		T4: Oblique: Modulation	–
		T5: Oblique: Modulation	–

The Suggested Translation

Considering the translations of the expression "deadlock" and how well they match its true meaning, the following translations are recommended:

يحدث توقف متبادل عندما تنتظر كل عملية الاخرى لإخلاء الموارد.

SS4: A hook allows custom code to be executed during specific events.

T1:

الخطاف البرمجي يسمح لك بإضافة أوامر خاصة عند حدوث عمليات محددة.

T2:

أن موضع الاضافة في الروتين يسمح بكود مخصص يكون تام خلال أحداث معينة.

T3:

يتيح الخطاف تنفيذ كود مخصص أثناء أحداث معينة.

T4:

يسمح هوك بتنفيذ التعليمات البرمجية المخصصة خلال أحداث محددة.

T5:

يتيح الربط تنفيذ التعليمات البرمجية عند حدوث عمليات محددة.

Context: In programming, the hook is a point that allows youto ex-ecute custom code when a particular eventoccurs within a system, without having to modify thesystem's basic code. "Hooks" are widely used inReact, WordPress, and Django frameworks, and helpmake systems flexible and customizable. The word"hook" in colloquial lan-guage means "خطاف " or"سنارة" which leads many translators to fall into thetrap of literal translation. For example, translating itas "خطاف" or "سنارة" is misleading andincomprehensible in a programming context. Thetranslator should ignore the literal meaning andunderstand the functional context of the word withinthe context.

Analysis: In the following subject (1) succeeded in giving anappro-priate Arabic translation because it used theoblique translation strat-egy through applying theadaptation techniques. Subject (4) followed obliquetranslation by applying the borrowing strategy bytranslating (hook to هوك) so it succeeded inconveying the correct meaning as هوك has become acommon term in some Arabic programming circles, and some prefer not to translate it literally. Subjects(2 and 5) failed to pro-vide the correct meaning forthis term because they used the oblique through modulation procedure, while (3) used directtranslation strat-egy by applying the literal translationprocedure which caused them to fail in giving anappropriate Arabic translation for this term. These-translations created cultural ambiguity, resulting ina loss of precise meaning and confusion for the non_export readers.

Table 6.4: The analysis of the fourth technical term (Hook).

SS	Meaning in SL	Strategy and procedure of translation	Cultural appropriateness
Hook	خطاف برمجي، هوك	T1: Oblique: Adaptation	+
		T2: Oblique: Adaptation	+
		T3: Oblique: Modulation	–
		T4: Oblique: Borrowing	+
		T5: Oblique: Modulation	–

The Suggested Translation

Considering the translations of the expression "Hook" and how well they match its true meaning, the following translations are recommended:

يستخدم الخطاف البرمجي لتشغيل الأوامر في أوقات معينة.

SS5: Each thread runs a part of the program independently and concurrently.

T1:

تدير كل ابرة جزء من برنامج بشكل مستقل تماماً.

T2:

يدير كل خيط جزءاً من البرنامج بشكل مستقل ومتزامن.

T3:

كل خيط يشغل جزءاً من البرنامج بشكل مستقل.

T4:

كل التهديدات الجارية هي جزء من برنامج بشكل مستقل ومتزامن.

T5:

يشغل كل خيط جزءاً من البرنامج بشكل مستقل ومتزامن.

Context: In computer science, a thread (or "processing thread") is a separate unit of execution within a program. When running a program, multiple threads can bedivided so that each carries out a different part of thecode simultaneously or in parallel, which is usefulfor improving performance, especially for tasks thatre- quire a long time or can be divided into separateparts. The word "Thread" has a special technicalmeaning, but the literal translation "thread" may bemisunderstood in common language. The trans- :lationof the term may vary depending on the writer orinstitution "خيط" (most commonly when using theEnglish original), سلسلة معالجة, مسار تنفيذي, وحدة معالجة حقيقة"" but there is no complete consensus onone with expla- "خيط" term, and this may confuse the Arab reader souse nation in context, especially inacademic texts. This maintains the .accuracy of theterm and reduces confusion

Analysis: Translations (1 and 4) followed the direct translation- strategy by applying the literal translation procedureby translate Thistranslation did not succeed in giving ,(تهديدات and ابرة (thread to the correctmeaning because it confuses the target reader, who-

does not have enough information of technicalexpressions, and therefore can not understand thisterm. Translations (2, 3, and 5) succeeded in givingthe correct meaning by using the direct trans-lationstrategy through applying the literal translationprocedure.

Table 6.5: the analysis of the fifth technical term (thread)

SS	Meaning in SL	Strategy and procedure of translation	Cultural appropriateness
Thread	خيط	T1: Direct: literal	–
		T2: Direct: literal	+
		T3: Direct: literal	+
		T4: Direct: literal	–
		T5: Direct: literal	+

The Suggested Translation

Considering the translations of the expression "thread " and how well they match its true meaning, the following translations are recommended:

تنفذ كل سلسلة معالجة جزءاً من البرنامج بصورة مستقلة ومتزامنة.

1.8 Conclusion

This study concludes that:

1 Some technical terms in software documentation were difficult in translation from English to Arabic, these difficulties related to the lexical type due to various meanings of each technical term used in different contexts.

2. According to the numbers and percentage of appropriateness found in the data analysis, it can be said that the appropriate trans-lation strategy to be employed for translating these technical terms is the direct strategy with its procedures (literal and Borrowing) and oblique strategy with its procedures (equivalence, adaptation, modulation and transposition).

3. Some translators followed the borrowing procedure in trans-lating some technical terms, because they misunderstand the original meaning and contexts of some terms and leave it without

translation.

4. Some translators changed the structure of some technical sentences to make it more suitable for the target audience. They followed different procedures of translation to achieve an appropriate Arabic translation for these terms.

5. Some translators have provided precise and clear translations of the selected technical terms, taking into account cultural differences between Arabic and English as well as technical and programmatic.

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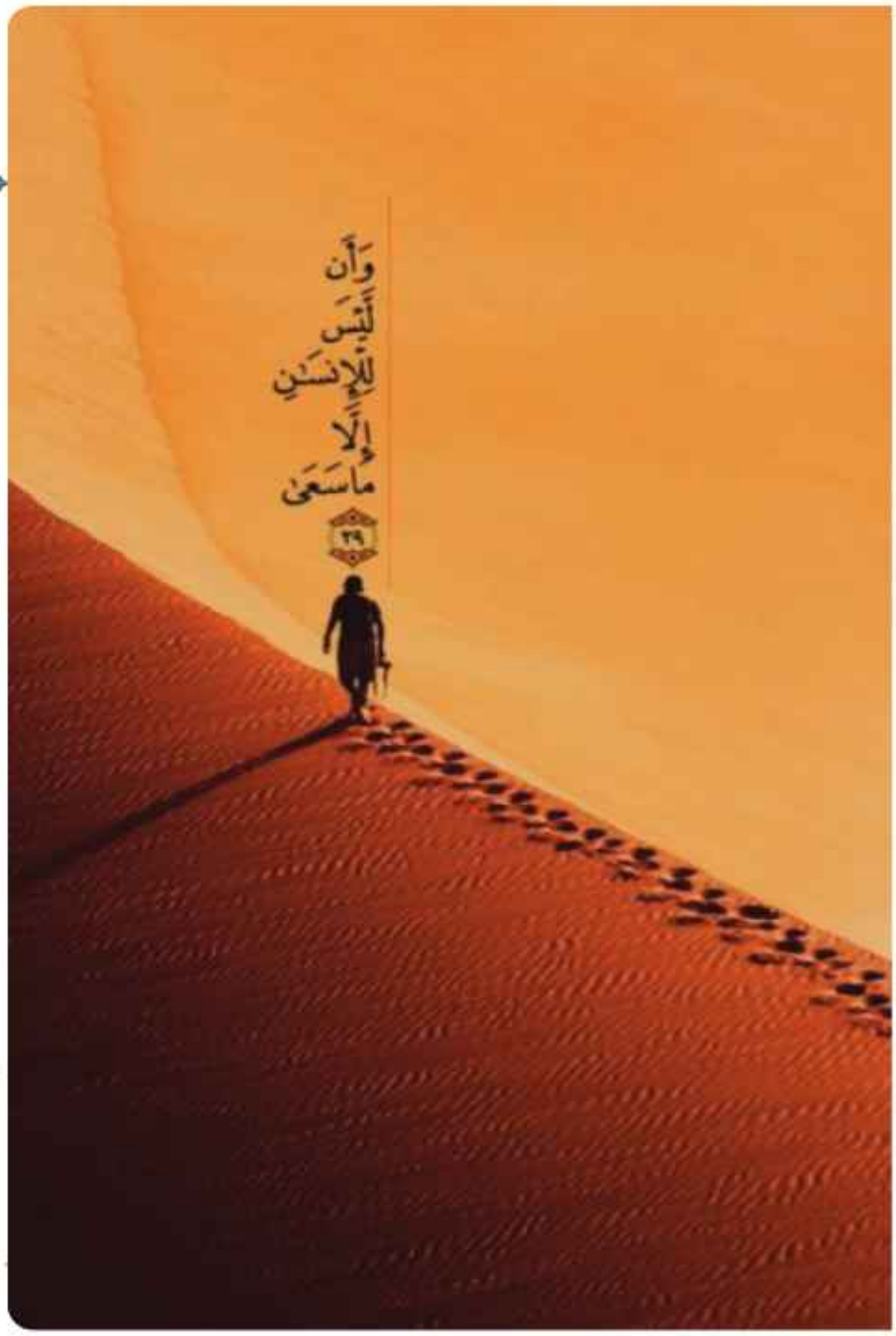

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