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The Translation of Metaphorical Expressions in English Medical Texts into Arabic

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Abstract

Metaphor is a prevalent figure of speech found in many languages. Because medical language and terminologies in general are so intricate and complex, translating medical metaphors may be a challenging task. The fundamental problem with medical metaphors is that they frequently refer to different cultural and linguistic settings, which makes it difficult to find comparable terminology in another language that expresses the same meanings and subtleties. The study aims to translate medical metaphors into Arabic and since medical metaphors, like any other metaphors, can be linguistic and conceptual, the study adopts an eclectic analytical framework, namely, Toury's linguistic strategies, and Mandelblit's Cognitive Translation Hypothesis. The data were taken from different internet authentic medical websites translated into Arabic by M.A. students in a questionnaire conducted in the Department of Translation/College of Arts. It is hypothesized that the main challenge that student translators encounter in the translating process is producing

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translations that are appropriate and understandable. Medical terminology and cultural diversity constitute another obstacle in the way of conducting translation. Further, Toury's linguistic strategies and Mandelblit's cognitive methods can be used in analyzing and comparing the translators' renderings. The study revealed that literal translation leads to loss of meaning or, rather, no meaning. The analyses also showed that similar metaphors are rarely found in two different cultures. Hence, the study recommends translators to be familiar with terminology, culture, and strategies that enable them to produce and convey the intended meaning appropriately.

Keywords: Metaphor, Metaphorical expressions, Medical metaphor; Toury's strategies; Mandelblit's hypothesis; Medical terminology; Cultural differences.

ترجمة التعابير المجازية في اللغة الإنكليزية الطبية

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المستخلص

الاستعارة هي تعبير مجازي يشيع في العديد من اللغات. ونظرًا الى التعقيدات التي تمثلها اللغة والمصطلحات الطبية بشكل عام، فإن ترجمة الاستعارات الطبية قد تكون بمثابة معضلة. وتتمثل المشكلة الأساسية في الاستعارات الطبية في كونها تشير في كثير من الأحيان إلى بيئات ثقافية ولغوية مختلفة، مما يجعل من الصعب العثور على مصطلحات مماثلة في لغة أخرى تعبر عن نفس المعاني والدلالات بصورة دقيقة. يهدف البحث إلى ترجمة الاستعارات الطبية إلى اللغة العربية، ونظراً لكون الاستعارات الطبية مثل أيّ استعارات أخرى، تكون إما لغويةً أو مفاهيميةً، لذا تبنى البحث إطاراً تحليلياً ثنائياً من خلال تطبيق استراتيجيات توري اللغوية وفرضيات مندلبليت المفاهيمية. تم جمع النصوص من مواقع طبية باللغة الانكليزية على شبكة الأنترنيت وترجمها إلى اللغة العربية عدد من طلبة الماجستير عبر استبانة الكترونية تمت في قسم الترجمة/كلية الآداب. وتفترض الدراسة أن التحدي الرئيس الذي يواجهه الطلبة المترجمون هو تقديم ترجمات مناسبة ومفهومة في آنٍ واحد. وعند تحليل ومقارنة ترجمات المترجمين ، تم التوصل الى انه يمكن تطبيق استراتيجيات توري اللغوية وفرضيات ماندلبليت المفاهيمية في ترجمة التعابير المجازية الطبية. علاوة

على ذلك، فإن المصـطلحات الطبية والتنوع الثقافي هما التحديان الرئيسـان اللذان يواجههما الطلاب المترجمون. وجدت الدراســـة أن الترجمة الحرفية تؤدي إلى فقدان المعنى أو بالأحرى عدم وجود معنى. كما أظهرت التحليلات أيضًا أنه نادرًا ما توجد استعارات متشابهة في ثقافتين مختلفتين. ومن ثم، توصـي الدراسـة بأن يكون المترجمون على دراية جيدة بالمصـطلحات والثقافة والاسـتراتيجيات اللازمة التي تمكنهم من فهم ونقل المعنى المقصود بشكل مناسب.

الكلمات الدالة: الاســتعارة، التعابير المجازية، الاســتعارة الطبية، اســتراتيجيات توري، فرضــيات مندلبليت، المصطلحات الطبية، الاختلافات الثقافية.

1. Introduction

Metaphor is a linguistic phenomenon that originated from Latin and Greek words meaning ‘transfer, alter, change’ and ‘meta’ meaning ‘over, across, and pherein’ meaning ‘to carry, bear’, (*Etymonline - Online Etymology Dictionary*, n.d.). According to Aristotle, metaphor is ‘the application of one thing in the name of another’. Further, he considers its use ‘a mark of genius’, (Hamdan, 2019, 81). It is formed primarily based on the similarity between two things: the thing we're talking about and that to which we're making comparison with. The elements of metaphor include the topic (tenor) and image (vehicle), and the point of similarity, which is implicit and involves the likeness between both topics and images.

Metaphors are embedded and condensed in our language, whether it's poetic, normal, colloquial, simple, or complex, (Sommer & Weiss, 2001, vii). They are accomplished in a word or phrase that could otherwise be expressed only in many words. Aristotle (Punter, 2007, 11) considers metaphor as a sign of genius, as it implies an intuitive perception of the similarity in dissimilars.

Metaphors affect people's thoughts and behaviors, as they affect their perception of the world when using metaphor, (Panther & Thornburg, 2017, 289). They are determined by similarities between the two things being compared and distinguished, and their successful application requires exceptional ability. Metaphors are just figures of speech used for special effects and have a significant role in daily human communication, in addition to common human reasoning and thought.

2. Traditional theories of metaphor

There are three traditional theories of metaphor: Substitution, Comparison, and Interaction theory. The substitution theory involves that the vehicle term substitutes for the topic one. Gibbs, (1994, 212) states “The substitution view holds that in understanding a metaphor, its metaphorical terms are replaced by literal terms that can fit the same context". For example, the metaphor 'Man is a wolf ' is an indirect manner of conveying the literal meaning of 'Man is fierce'. Therefore, the literal meaning can be replaced with the metaphorical one. The substitution theory suggests that metaphorical terms are replaced by literal terms in understanding a metaphor. Metaphorical meanings can be explained based on their literal use, such as 'Diana is a rabbit' can be replaced by 'Diana is a timid girl'. In

other words, the quality of 'timidity' is shared between 'Diana' and 'the rabbit' (Benzoukh, 2010, 15).

Comparison theory consists of three central notions: topic, vehicle, and grounds. The topic refers to the entity being compared, the vehicle is the notion to which it is compared, and the grounds are the respect in which this comparison is made. This theory is rooted in Aristotle's rhetoric, where metaphors are elliptical similes with the terms 'like' and 'as' omitted, (Benzoukh, 2010, 15). For example, the sentence 'Peter is a tiger' is the collapsed form of the sentence 'Peter is like a tiger'.

The interaction theory suggests that two ideas interact within a single word on a common basis, with the tenor representing the literal meaning and the vehicle representing the metaphorical meaning, (Black, 1962, 38). The ground, a similarity point, is formed by these components. In the sentence "Peter is a tiger," the tenor and vehicle are "Peter" and "tiger," respectively, implying a constant mutual effect between the referred and original meanings, (Youguo, 2013, 561). However, these theories were ineffective. They didn't do a thorough analysis of metaphor, assess its conceptual implications and mental images, or consider how metaphor reframes our attitudes, thoughts, and ideologies in a novel, insightful way, (Abdulrahman, 2023, 160). Alternatively, research on conceptual metaphors thoroughly examines all types of metaphors that stem from how people perceive and understand the world.

3. Conceptual Metaphor Theory

The interaction theory laid the groundwork for conceptual metaphor theory, focusing on how the human cognitive system functions in understanding metaphor phenomena. A new approach to studying metaphors emerged in cognitive linguistics, as outlined in "Metaphors We Live" a seminal work by (Lakoff & Johnson, 1980), which argues that metaphor is not just an ornamental device but a tool of thought, (Kovecses, 2021, 191). Lakoff and Johnson emphasize that the conceptual system is largely metaphorical, based on basic bodily experiences, (Kovecses, 2021, 191). Linguistic expressions are grounded in experience, including bodily, physical, social, and cultural aspects, (Popova, 2003, 139). Metaphorical expressions are often viewed as ubiquitous in everyday language, which is "The essence of metaphor'', (Lakoff & Johnson, 1980, 5), with some being so common that their meaning is often recognized as literal rather than figurative, (Bolinska et al., 2003, 46).

Kovecses, (2002, 4) defines metaphor as understanding one conceptual domain in terms of another. This means that Domain (A) is comprehended through Domain (B). This comprehension is based on a set of mappings (i.e., systematic correspondences) that exist between elements of A and elements of B", (Zibin, 2016, 2). These two domains are conceptualized through a series of conceptual correspondences that are technically known as 'mappings', (Knowles & Moon, 2005, 26) . Holme, (2004, 17) clarifies that "Mapping means a transfer of meaning from one domain to another domain".

4. Types of conceptual metaphors

In terms of Lakoff & Johnson's categorization of conceptual metaphors, conceptual metaphors are classified into: structural, orientational, and ontological:

Structural conceptual metaphors, such as "treatment is war," are used in the science of human health to structure concepts. These metaphors, also known as military metaphors, are among the oldest in medicine and remain common, (Khullar, 2014, 2). They are used

in doctors' language and medical jargon, making them a significant part of medical terminology, (Hodgkin, 1985, 1820). Orientational conceptual metaphors, often related to spatial orientation, are central to medicine. The most central metaphor is 'Health is Up, illness is Down', (Pearce, 2021, 1), which is associated with upright postures and stooping postures. These metaphors are culturally and experientially based, with some cultures viewing the future as frontal or backward, while others see it as backward, (Vu, 2015, 68). Ontological conceptual metaphors are bodily experiential metaphors that allow us to treat experiences as discrete entities or substances in medicine, (Lakoff & Johnson, 1980, 25), such metaphors include 'BODY IS MACHINE' and 'HEART IS PUMP'. However, there is a threat of medicine being dominated by mechanical hubris, with engineers often using 'Engineering metaphor' to describe diseases, doctors as engineers, and patients as machines, (Coulehan, 2003, 92; Thomas, 2013, 1). Also, container metaphors and personification are particularly important in medicine such as 'bodies flushing out toxins' and 'cells interact with each other'.

5. Medical metaphors

Medical literature aims to simplify vast amounts of information to achieve optimal effectiveness in science and medicine. Metaphors have been used in medicine for centuries to describe health, disease, and doctor-patient relationships. These days, physicians and patients widely use metaphors to convey different medical conditions and experiences like burning pain, cluster headache, glue ear, whiplash injury, and invasive cancer. Oncologists use at least one metaphor in each patient conversation, and patients appreciate the use of metaphors for better communication, (Casarett et al., 2010, 255–260).

Clinicians use metaphors to clarify complex ideas, facilitating patient diagnostic reasoning and attitudes toward illness and treatment strategies. As a result, metaphors are a major part of medical language. Phrases like 'He sank into a coma', You're in tip-top condition', and 'Falling ill' are founded on the belief that disease is declining and health is rising "in the sense that understanding the impacts of different metaphors may help us use them in ways that are most helpful to patients' particular situations and mindsets", (Hodgkin, 1985, 1820). Larson, (2011, 133) states that "By using metaphors from everyday sources, biologists have the power to gradually fashion the natural world in their image, both in thought and deed". Moreover, war metaphors are almost the most common type and often evoke positive emotions by highlighting patients' resilience and portraying them as willing fighters, such as 'disease is war', 'cancer battling', and 'illness defeating'.

6. Medical text

Medical text or language can be defined as the language used by medical experts in their professional communication, it is influenced mostly by Greek and Latin medical traditions (Dzuganova, 2019, 131) .The language of medical texts is exclusively employed within certain medical contexts. As a result, this language has unique characteristics that set it apart from other kinds of texts, (Hussein Al-Jubori, 2022, 123). Rosendo, (2008, 132–133) states that medical and scientific texts are distinguished by the following characteristics:

(1) Nominalization of verbs and adjectives, e.g. growing appreciation
(2) Technical phrases (medical jargon), e.g. the patient presented with appendicitis.
(3) Extended nominal groups/collocations, e.g. human immune deficiency virus.

(4) Tentative language (hedging), e.g. Reduced attachment in the face of polymorph infiltration might indirectly reflect aspects of the immune response.
(5) Causal and reasoning verbs, e.g. addiction is caused by heroin.
(6) Impersonal language and passivation, e.g. good agreement was obtained between the two tests.

7. Medical metaphor and translation

Medical translation is a crucial aspect of healthcare, as it involves replacing, textual material in one language with equivalent material in another language, (Catford, 1965, 20). Translation involves at least two languages and cultural traditions, (Toury, 2000, 200), making it challenging for translators to adapt to these differences. Language and cultural differences can pose more serious challenges than linguistic structure, and translators must be bi-cultural.

Metaphors are particularly challenging in translation due to their cultural variations much more than linguistic ones, (Nida, 2000, 130). Translators must reproduce the phenomenon of metaphor itself in the target language's semantic lexicon and employ the right strategies to express the desired meaning. Metaphors contain both speakers' meaning and word or sentence and cultural meaning, and they may not always trigger the same connotation in another language or appear unusual to the target language readership.

A keen knowledge of terms, concepts, idiomaticity, phraseology, grammatical rules, and various conceptualizations in modern science and biomedicine is necessary for successful translation. For Montalt & Davies, (2014, 47) the translator of the medical material must be familiar with the most translated genres, medical terms, chemical generic and trade names, terminological standardization, medical metaphors and images, acronyms, abbreviations, symbols, and linguistic varieties within the same language.

In medicine, common metaphors and idioms can be related to war, sports, colors, spring, youth, animals, computers, food, or hunting. Translators working on medical literature should adopt strategies that convey the closest natural equivalent (Nida & Taber, 2004, 12) rather than adhering to the linguistic conventions of the target language (Warambo & Odero, 2015, 1).

8. The model adopted

The study uses Toury's (1995) linguistic strategies and Mandelblit's (1995) cognitive methods to translate medical metaphorical expressions. Toury's strategies are flexible but only cover the linguistic aspect, while Mandelblit's methods cover the cognitive aspect.

Toury, (2012, 108) believes that most of the research conducted on metaphor translation has generally arrived at the following strategies:

1: Metaphor into ‘same’ metaphor.
2: Metaphor into ‘different’ metaphor.
3: Metaphor into non-metaphor.
4: Metaphor into 0. (i.e., complete omission, leaving no trace in the target text).

Mandelblit, (1995, 486) Cognitive Translation Hypothesis (CTH) highlights the significance of conceptual mappings between languages and proposes two methods for translating metaphors: Similar Mapping Conditions (SMC) and Different Mapping Conditions (DMC).

9. Texts Analysis

Text 1

"Paola Arlotta seeks to understand the **complex symphony of brain development** in vitro by using organoid models", (The Scientist, May 1, 2024).
https://www.the-scientist.com/understanding-the-symphony-of-human-brain-development-71755

TL-Texts:

1. تبحث باولا ارلوتا في المختبر فهم **السمفونية المعقدة لتطور الدماغ** وذلك باستخدام العينات العضوية.
2. ان ما تقوم به باولا ارلوتا في المختبر من ابحاث لفهم **السمفونية المعقدة لتطور الدماغ** وذلك باستخدام نماذج عضوية.
3. تهدف باولا أرلوتا الى فهم **نمو الدماغ** مختبريا باستخدام نماذج العضويات.
4. تسعى باولا أرلوتا لفهم **تعقيدات تطور الدماغ** في المختبر باستخدام نماذج عضوية.
5. ترغب باولا ارلوتا في فهم **تناغم سلسلة المراحل المعقدة لتطور الدماغ** في المختبر باستخدام عينات عضوية.
6. تسعى باولا أرلوتا لدراسة **نمو الدماغ** في المختبر باستخدام النماذج العضوية.
7. تحاول باولا أرلوتا دراسة **العمليات المعقدة لنمو الدماغ** في المختبر عبر استخدام نماذج عضوية.
8. تهدف باولا ارلوتا لفهم **سيمفونية تطور الدماغ المعقدة** مختبريا من خلال نماذج الأعضاء.
9. تسعى باولا أرلوتا لفهم **تناغم المراحل المعقدة لتطور الدماغ** في المختبر مستخدمة نماذج عضوية.
10. تحاول باولا أرلوتا فهم **السمفونية المعقدة لتطور الدماغ** باستخدام عينات عضوية مختبريا.

Analysis and Discussion:

Given the conceptual metaphor *'brain development is a symphony'*, the (SD) is 'symphony', at the same time, the (TD) is 'brain development'. Here, the mappings suggest that the process of brain development is exceptionally organized and complex like the composition and performance of a symphony. Concerning the linguistic aspect, translators (1,2,8,10) render the metaphor literally (metaphor into different metaphor) by utilizing 'السمفونية' which does not accurately capture the (ST) figurative meaning. On the cognitive side, they render the 'symphony' literally (different mapping conditions), removing the intended meaning of 'working in harmony'. Linguistically, translators (5, 9) succeed in getting the required meaning via (metaphor into different metaphor) conveying the meaning by 'التناغم المعقد' and 'تطور الدماغ' which reveals the appropriate nuances of the (ST) metaphor as the development of the brain is as similar to a symphony, where several instruments must play in harmony. Cognitively, both translators (5,9) effectively preserve the conceptual metaphor under (different mapping conditions), where recipients can comprehend brain development as a well-organized, harmonious process. Linguistically, translators (4,7) use a more straightforward explanation 'تعقيدات'; 'complexities' ;'العمليات المعقدة' 'complex processes', cognate with (metaphor into non-metaphor). Cognitively, conceptual mappings are in line with (different mapping conditions). Linguistically, translators (3,6) eliminate the metaphor, indicating that the metaphor's emotional impact strength is diminished which is equivalent to (metaphor into 0).Cognitively, conceptual mappings fit (different mapping conditions).

ST.1	'Paola Arlotta seeks to understand the complex symphony of brain development in vitro by using organoid models'					
	linguistically				cognitively	
Criteria	metaphor into			metaphor into	similar mapping conditions	

	same metaphor	metaphor into different metaphor	metaphor into non-metaphor	0	same wording	different wording	different mapping conditions
Tr. 1	-	+	-	-	-	-	+
Tr. 2	-	+	-	-	-	-	+
Tr. 3	-	-	-	+	-	-	+
Tr. 4	-	-	+	-	-	-	+
Tr. 5	-	+	-	-	-	-	+
Tr. 6	-	-	-	+	-	-	+
Tr. 7	-	-	+	-	-	-	+
Tr. 8	-	+	-	-	-	-	+
Tr. 9	-	+	-	-	-	-	+
Tr. 10	-	+	-	-	-	-	+

Table (1) shows the linguistic and cognitive analysis of translated materials

Text 2

"During feelings of anxiety, **the brain kicks the heart into overdrive**", (The Scientist, March 1, 2023).

https://www.the-scientist.com/the-heart-can-directly-influence-our-emotions-70995

TL-Texts:

1. أثناء مشاعر القلق، **يسرّع الدماغ ضربات القلب بشكل كبير**.
2. عند القلق، **يزداد نشاط القلب**.
3. في لحظات القلق، **يدفع الدماغ القلب إلى العمل بجهد زائد**.
4. خلال القلق، **يرفع الدماغ نبضات القلب إلى أقصى حد**.
5. خلال مشاعر القلق، **يزداد نشاط القلب**.
6. أثناء القلق، **كأنَّما تضرمُ النار في القلب**.
7. في حالات القلق، **يتغير معدل ضربات القلب**.
8. خلال نوبات القلق، **يدفع الدماغ القلب إلى حالة من النشاط المفرط**.
9. خلال مشاعر القلق، **يلهبُ الدماغ القلب**.
10. عند الشعور بالقلق، **يرتفع نشاط القلب**.

Analysis and Discussion:

Based on the conceptual metaphor 'The brain controls the heart', the (SD) is 'kicking into overdrive'; control system or engine regulator, at the same time, the (TD) is 'brain's influence on the heart during anxiety'; the engine or mechanical component. Here, the mappings display that the metaphor implies that, as an engine may accelerate, anxiety causes the brain to forcibly boost the heart's activity. Linguistically speaking, translators (1,3,4,8) succeed in grasping the meaning appropriately, retaining the image of the metaphor of the brain vividly pushing the heart into a hyperactive state in accord with (metaphor into same metaphor). On the cognitive aspect, they keep the conceptual mappings of the brain pressing the heart in the Arabic versions in line with the (ST) matching (similar mapping conditions) and aligning with the (different wording) category. Linguistically, translator (9) utilizes another metaphor, comparing the activity of the brain to lighting a fire in the heart (metaphor into different metaphor). Cognitively, translator (9) alters the metaphorical image, leading to different conceptual mappings of the heart's and brain's behavior that fall into (different mapping conditions). Linguistically, translators

(2,5,6,10) replace the (ST) metaphor with (metaphor into non-metaphor). Translator (6) employs a distinct image by a simile (كـأنّمـا تضـــرمُ النـار) to suggest a state of extreme activation, akin to 'overdrive'. Cognitively, they shift the metaphorical account of how the brain affects the heart to a true physiological explanation in the conceptual mapping that is apt for (different mapping conditions). Linguistically, translator (7) chooses the strategy (metaphor into 0). Cognitively, translation (7) converts the conceptual mapping from figurative to non-figurative one, that is (different mapping conditions).

ST.2	'During feelings of anxiety, the brain kicks the heart into overdrive'						
	linguistically				cognitively		
Criteria	metaphor into same metaphor	metaphor into different metaphor	metaphor into non-metaphor	metaphor into 0	similar mapping conditions		different mapping conditions
					same wording	different wording	
Tr. 1	+	-	-	-	-	+	-
Tr. 2	-	-	+	-	-	-	+
Tr. 3	+	-	-	-	-	+	-
Tr. 4	+	-	-	-	-	+	-
Tr. 5	-	-	+	-	-	-	+
Tr. 6	-	-	+	-	-	-	+
Tr. 7	-	-	-	+	-	-	+
Tr. 8	+	-	-	-	-	+	-
Tr. 9	-	+	-	-	-	-	+
Tr. 10	-	-	+	-	-	-	+

Table (2) shows the linguistic and cognitive analysis of translated materials

Text 3

"The blood-brain barrier (BBB) is a **cellular fortress** that regulates what comes in and goes out of the brain", (The Scientist, March 22, 2024).
https://www.the-scientist.com/a-journey-into-the-brain-71735

TL-Texts:

1. ان الحاجز الدموي الدماغي (BBB) هو **معقل خلوي** يتحكم فيما يدخل إلى الدماغ وما يخرج منه.
2. ان الحاجز الدموي الدماغي (BBB) هو **حصن خلوي** ينظم ما يدخل إلى الدماغ وما يخرج منه.
3. ان الحاجز الدموي الدماغي (BBB) هو **حاجز خلوي** ينظم المواد التي تدخل إلى الدماغ وتخرج منه.
4. ان خروج ودخول المواد من والى الدماغ من خلال الحاجز الدموي الدماغي (BBB).
5. ان الحاجز الدموي الدماغي (BBB) **فاصل خلوي** يتحكم في نفاذ المواد إلى الدماغ.
6. ان الحاجز الدموي الدماغي (BBB) هو **قلعة خلوية** تتحكم في ما يدخل إلى الدماغ وما يخرج منه.
7. الحاجز الدموي الدماغي (BBB) هو **حصن خلوي** يحمي الدماغ من المواد الداخلة والخارجة.

8. ان الحاجز الدموي الدماغي (BBB) هو **حصن خلوي** لوقاية الدماغ من المواد الداخلة والخارجة.
9. ان الحاجز الدموي الدماغي (BBB) هو **قلعة خلوية** تنظم حركة المواد إلى داخل وخارج الدماغ.
10. ما يدخل إلى الدماغ وما يخرج منه عبر الحاجز الدموي الدماغي (BBB).

Analysis and Discussion:

Based on the metaphor *'the blood-brain barrier is a fortress'*, the (SD) is a 'fortress', while the (TD) is a 'blood-brain barrier'. So, the mappings show that like a fortress controls and guards against intruders, the blood brain barrier (BBB) is implied to operate as a highly effective and controlling barrier that limits and protects which substances may enter or exit the brain. In terms of the linguistic aspect, translators (1,2,6,7,8,9) translate the conceptual metaphor 'cellular fortress' as 'معقل خلوي', ' حصـن خلـوي', 'قلـعـة خلـويـة', which are too literal and cognate with (metaphor into different metaphor). Concerning the cognitive side, translators (1,2,6,7,8,9) render in line with (different mapping conditions). Linguistically, translators (3,5) succeed in giving a more accurate description while changing the metaphor. The metaphor 'cellular fortress' is translated to 'cellular barrier ' 'حاجز خلوي', or 'فاصل خلوي', coinciding with (metaphor into different metaphor). Cognitively, the translations (3,5) convert the conceptual mapping into (different mapping conditions). Linguistically, translators (4,10) dismiss the metaphor (metaphor into 0). Cognitively, the translations (4,10) denote a change in the conceptual mapping from images that are metaphorical to straightforward descriptions and also fit (different mapping conditions).

ST.3	'The blood-brain barrier (BBB) is a cellular **fortress** that regulates what comes in and goes out of the brain'						
	linguistically				cognitively		
Criteria	metaphor into same metaphor	metaphor into different metaphor	metaphor into non-metaphor	metaphor into 0	similar mapping conditions		different mapping conditions
					same wording	different wording	
Tr. 1	-	+	-	-	-	-	+
Tr. 2	-	+	-	-	-	-	+
Tr. 3	-	-	+	-	-	-	+
Tr. 4	-	-	-	+	-	-	+
Tr. 5	-	-	+	-	-	-	+
Tr. 6	-	+	-	-	-	-	+
Tr. 7	-	+	-	-	-	-	+
Tr. 8	-	+	-	-	-	-	+
Tr. 9	-	+	-	-	-	-	+
Tr. 10	-	-	-	+	-	-	+

Table (3) shows the linguistic and cognitive analysis of translated materials

Text 4

"Finding neurology's **'holy grail'**: At Ohio State, promising research could change the lives of those suffering from devastating neurological conditions", (The Ohio State University College of Medicine, Annual Report 2021).
https://medicine.osu.edu/about-us/annual-report/neurology-holy-grail

TL-Texts:

1. الوصول الى **'الحل السحري'** لأمراض الأعصاب: في جامعة ولاية أوهايو، قد تغير الأبحاث الواعدة حياة اولئك الذين يعانون من اوضاع عصبية مدمرة.
2. العثور على **'الحل السحري'** في الأعصاب: ففي ولاية أوهايو، يمكن للأبحاث المتقدمة أن تُحدث فرقًا في حياة المصابين بأمراض عصبية خطيرة.
3. علاج أمراض الأعصاب: تبحث جامعة ولاية أوهايو، معالجة مرضى الحالات العصبية الشديدة.
4. التوصل الى **'الإكسير السحري'** لعلاج الأعصاب: في جامعة ولاية أوهايو، فان الابحاث المتقدمة قد تغير حياة من يعانون من حالات عصبية خطيرة.
5. اكتشاف **'الكأس المقدسة'** لعلم الأعصاب: في ولاية أوهايو، قد تُحدث الأبحاث المتقدمة تغييراً في حياة من يعانون من حالات عصبية مستعصية.
6. الوصول إلى **'الكأس المقدسة'** لعلم الأعصاب: ففي جامعة ولاية أوهايو، قد تغير البحوث المستقبلية حياة الذين يعانون من امراض عصبية مستعصية على الشفاء.
7. اكتشاف **'مفتاح الشفاء'** لعلم الأعصاب: في جامعة ولاية أوهايو، الأبحاث الواعدة قد تغير حياة من يعانون من حالات عصبية مدمرة.
8. علاج في علم الأعصاب: فقد تعالج بحوث جامعة أوهايو اولئك الذين يعانون امراضاً عصبية مدمرة.
9. إيجاد **'الحل الأمثل'** في علم الأعصاب: في ولاية أوهايو، يمكن للأبحاث المتقدمة أن تُحدث فرقًا كبيرًا في حياة مرضى الأمراض العصبية الخطيرة.
10. إيجاد **'الكأس المقدسة'** لعلم الأعصاب: في ولاية أوهايو، يمكن أن تغير الأبحاث الواعدة حياة المصابين بأمراض عصبية خطيرة.

Analysis and Discussion:

The expression 'holy grail' refers to a highly wanted objective in neurology through the conceptual metaphor *'a breakthrough in neurology is the holy grail'*, drawing on the idea of the holy grail, a mythical and much sought-after thing in medieval history. The (SD) is the 'holy grail', while the (TD) is the 'breakthrough in neurology'. Here, the mappings present that the metaphor implies that a major neuroscience discovery is an important, challenging, and life-changing success, similar to searching for the holy grail. In terms of the linguistic side, translators (5,6,10) provide quite literal renderings in keeping with (metaphor into different metaphor); and 'الكأس المقدس' is an inappropriate choice because the metaphorical expression the 'holy grail' is an English culture-bound notion. Cognitively speaking, they present conceptual mappings under (different mapping conditions). Linguistically, translators (1,2,4,7,9) succeed in altering the metaphor using 'الحل السحري' 'magic solution', 'الإكسير السحري' 'magic elixir', 'مفتاح الشفاء' 'key to healing', 'الحل الأمثل' 'optimal solution', which are more appropriate and acceptable renditions of a piece with (metaphor into different metaphor). Cognitively, they change how the topic is conceptualized, creating different conceptual structures that are kin to (different mapping conditions). Linguistically, translators (3,8) eliminate the metaphor (metaphor into non-metaphor). Cognitively, translators (3,8) turn the metaphor into a direct description, so the conceptual mappings are within (different mapping conditions).

ST.4	'Finding neurology's 'holy grail': At Ohio State, promising research could change the lives of those suffering from devastating neurological conditions'					
	linguistically				cognitively	
Criteria	metaphor into			metaphor into	similar mapping conditions	

	same metaphor	metaphor into different metaphor	metaphor into non-metaphor	0	same wording	different wording	different mapping conditions
Tr. 1	-	+	-	-	-	-	+
Tr. 2	-	+	-	-	-	-	+
Tr. 3	-	-	+	-	-	-	+
Tr. 4	-	+	-	-	-	-	+
Tr. 5	-	+	-	-	-	-	+
Tr. 6	-	+	-	-	-	-	+
Tr. 7	-	+	-	-	-	-	+
Tr. 8	-	-	+	-	-	-	+
Tr. 9	-	+	-	-	-	-	+
Tr. 10	-	+	-	-	-	-	+

Table (4) shows the linguistic and cognitive analysis of translated materials

Text 5

'**Black sheep**' of helper T cells may hold key to precision allergy treatment", (ScienceDaily, May 3, 2023.(
https://www.sciencedaily.com/releases/2023/05/230503154622.htm

TL-Texts:

1. قد يحمل **الخروف الأسوَد** من خلايا T المساعِدة مفتاح العلاج الدقيق للحساسية.
2. قد تساعد الخلايا التائية المساعِدة في اكتشاف العلاج الدقيق للحساسية.
3. قد تحمل خلايا T المساعِدة مفتاح العلاج الدقيق للحساسية.
4. قد تحمل الخلايا التائية المساعِدة **غير العادية** الحل لعلاج الحساسية الدقيق.
5. قد يحمل **الخروف الأسوَد** للخلايا التائية المساعِدة سر علاج الحساسية الدقيق.
6. قد تكون خلايا T المساعِدة مفتاح العلاج الدقيق للحساسية.
7. قد يكون **الخروف الأسوَد** لخلايا تي المساعِدة هو الحل لعلاج الحساسية الدقيق.
8. قد توفر خلايا T المساعدة علاجاً دقيقاً للحساسية.
9. قد تكون الخلايا التائية المساعدة **المختلفة** مفتاح العلاج الدقيق للحساسية.
10. قد تحمل خلايا T المساعِدة **الغريبة** الحل للعلاج الدقيق للحساسية.

Analysis and Discussion:

In the conceptual metaphor, *'being different is being important'*, the (SD) is 'black sheep', while the (TD) is 'helper T cells'. Here, the mappings present something unusual, yet possibly highly significant. In terms of the linguistic side, translators (1,5,7) use the metaphorical concept of ' الخروف الأســوَد ' 'black sheep' under (metaphor into different metaphor), which is too literal and unacceptable for the Arab recipients since it is an English culture-specific usage. Cognitively speaking, they adhere to (different mapping conditions). Linguistically, translators (2,3,4,6,8,9,10) give a direct description of the cells without using any metaphorical expressions depending on (metaphor into non-metaphor). Cognitively, they paraphrase it, which leads to the creation of another type of mapping that cognates with (different mapping conditions). Consequently, since no version manages appropriately to figure out the text's intended metaphorical meaning, a new one is proposed:

"قد يكون **نوع نادر** من خلايا(T) المساعِدة مفتاحًا للعلاج الدقيق للحساسية".

	"Black sheep' of helper T cells may hold key to precision allergy treatment'

ST.5	linguistically				cognitively		
Criteria	metaphor into same metaphor	metaphor into different metaphor	metaphor into non-metaphor	metaphor into 0	similar mapping conditions		different mapping conditions
					same wording	different wording	
Tr. 1	-	+	-	-	-	-	+
Tr. 2	-	-	+	-	-	-	+
Tr. 3	-	-	+	-	-	-	+
Tr. 4	-	-	+	-	-	-	+
Tr. 5	-	+	-	-	-	-	+
Tr. 6	-	-	+	-	-	-	+
Tr. 7	-	+	-	-	-	-	+
Tr. 8	-	-	+	-	-	-	+
Tr. 9	-	-	+	-	-	-	+
Tr. 10	-	-	+	-	-	-	+

Table (5) shows the linguistic and cognitive analysis of translated materials

10. The study has come with the following conclusions:

1. The analysis reveals that translators struggle to produce comprehensible translations due to the need to accurately understand metaphorical expressions in medical texts, often presenting translations that overlook linguistic and cultural differences.
2. The study reveals that while scientific language and medical literature are generally neutral, English metaphors often contain cultural references, making communication between cultures difficult. This presents significant challenges for student translators, who need to understand target and source cultures, and have adequate medical terminology knowledge.
3. Literal translation is the simplest method for translating metaphors in scientific texts, but it doesn't help translate medical metaphors. It can lead to poor, confusing, and meaningless work, as the target audience may be misled. Many metaphors have been translated into Arabic, which is often inaccurate due to shared cultural and contextual concepts.
4. Translating performance analysis focuses on the translatability of metaphors in medical texts from English to Arabic. Toury's model offers a structured framework for selecting appropriate metaphor strategies, while Mandelblit's hypotheses emphasize the mental shift from one conceptual structure to another. CMT (cognitive aspect) can improve understanding of the topic. Different strategies lead to diverse representations of the same medical metaphor due to cultural background and linguistic particularities. Combining existing linguistic typologies with conceptual metaphor theory is effective for describing medical metaphorical expressions between English and Arabic languages.

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