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The Role of Cognitive Schema Theory in the Translation from Arabic into English

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Abstract

This study investigates the role of schema theory in translation and aims to gain knowledge that may progress AI-related domains through the simulation of cognition and AI. Schema theory hypothesizes that translators use mental frameworks (schemata) to organize and interpret information. In the context of translation, schemata play a crucial role in knowledge representation, affecting limitations made during the translation process. A cognitive approach is employed and qualitative methods are used in the analysis. A corpus is collected from the translation of a SL Arabic novel (**Frankenstein in Baghdad** by A. Saadawi) into TL English, covering domains and language pairs. The translation process is analyzed to identify cognitive patterns employed by the translator as they apply schemata to achieve cross-cultural renditions. Conclusions reveal that schema activation significantly impacts translation choices, influencing how the translator interprets and conveys meaning across languages.

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Cognitive patterns shed light on how cultural and linguistic factors influence the transfer of information between SL and TL. Additionally, the study uncovers variations in schema utilization across different translation tasks and the adaptability and flexibility of cognitive processes in response to varying contexts and linguistic challenges. By deepening our understanding of schema theory, this research contributes to the design, training, and assessment of AI algorithms. It also provides valuable insights into the cognitive mechanisms underlying successful cross-linguistic communication and offers practical implications for translators engaged in intercultural exchange. Finally, this paper recommends that AI systems can drive advancements in MT and other AI-related fields of prior knowledge to produce accuracy and more closely with native speakers by using schema theory concepts.

Keywords: Schema Theory, Cognitive Processes, Translation Process, Cognitive Model of Translation, AI-related Fields.

دور نظرية المخطط الإدراكي في الترجمة من العربية إلى الإنكليزية

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ملخص البحث

الخلاصة: تبحث هذه الدراسة في دور نظرية المخطط في الترجمة وتهدف إلى اكتساب المعرفة التي ستقدم المجالات المتعلقة بالذكاء الاصطناعي من خلال محاكاة الإدراك والذكاء الاصطناعي. تفترض نظرية المخطط أن المترجمين يستخدمون الأطر الذهنية (المخطط) لتنظيم المعلومات وتفسيرها. وفي سياق الترجمة، تؤدي المخططات دوراً حاسماً في تمثيل المعارف، مما يؤثر على القيود المفروضة أثناء عملية الترجمة. يستخدم البحث نهجاً إدراكياً ونوعياً في التحليل. حيث تم جمع مجموعة من نصوص الرواية العربية (النص المصدر) (فرانكشتاين في بغداد بقلم أ. سعداوي) إلى اللغة الإنجليزية (النص الهدف)، والتي تغطي المجالات وأزواج اللغات. تم تحليل عملية الترجمة لتحديد الأنماط الإدراكية التي يستخدمها المترجم أثناء تطبيقه للمخططات لتحقيق عمليات النقل عبر الثقافات. تكشف الاستنتاجات أن تنشيط المخطط يؤثر بشكل كبير على خيارات الترجمة، مما يؤثر على كيفية تفسير المترجم ونقله للمعنى عبر اللغات. تلقي الأنماط الإدراكية الضوء على كيفية تأثير العوامل الثقافية واللغوية على نقل المعلومات بين اللغة المصدر والهدف. فضلاً عن، اكتشف الدراسة اختلافات في استخدام المخطط عبر مهام الترجمة المختلفة وقابلية التكيف والمرونة في العمليات الإدراكية استجابة للسياقات المختلفة والتحديات اللغوية. ومن خلال تعميق فهمنا لنظرية المخطط، يساهم هذا البحث في تصميم وتدريب وتقييم خوارزميات الذكاء

الاصطناعي، كما أنه يوفر رؤية قيمة حول الآليات الإدراكية الكامنة وراء التواصل الناجح بين اللغات ويوفر آثارًا عملية للمترجمين المشاركين في التبادل بين الثقافات. وفي النهاية، توصي هذه الورقة بأن أنظمة الذكاء الاصطناعي يمكن أن تدفع التطورات في الترجمة الآلية وغيرها من مجالات الإدراك السابقة المتعلقة بالذكاء الاصطناعي لإنتاج الدقة وعلى وجه الخصوص مع المتحدثين الأصليين باستخدام مفاهيم نظرية المخطط. الكلمات المفتاحية: نظرية المخطط، العمليات المعرفية، عملية الترجمة، جوانب النموذج الإدراكي للترجمة، المجالات المتصلة بالذكاء الاصطناعي.

Introduction

Schema theory, a core idea in cognitive stylistics, is mostly derived from stylistics and cognition. A cognitive architecture known as a schema provides details on how things like things, events, and circumstances are understood. By doing so, it facilitates the creation of mental maps that depict the language interaction between the interaction's participants (Emmott *et. al*, 2023: 284). Only a few parts are specified by text producers, and readers quickly understand such texts by combining these elements with the relevant information from schemata. By transferring information from the ST into the TT, while taking into account the schemata and general knowledge of the TT, a schema comprises common default information that facilitates understanding by enabling a receptor to utilize aspects that are either not completely stated or not addressed in the text. In other words, it should be noted that the translator's work is to ensure that communication is unambiguous by understanding and using the appropriate schemata and general information in both the SL and TL. To facilitate comprehension and encourage simple communication and understanding between distinct language communities, the translator fills in the cultural and linguistic gaps between the text producer and recipient (Whyatt, 2017: 176). When readers are allowed to fill in the "gaps" of information offered in a book, these characteristics of schemata provide cognitive support for the assumptions they make (Brône and Vandaele, 2009: 23; Göpferich, 2017: 409). Schema theory is important because it not only explains the basic mechanism by which reading takes place but also it demonstrates how an author

may create "special effects" by subverting, exploiting, altering, or violating the reader's schema knowledge (Göpferich, 2017: 409). As a result, this paper investigates the application of schema theory to the analysis of translation and explores some of the key situations in which it has been used in cognitive poetics and stylistics.

1. Background: Cognitive Translation Studies (CTS)

Characteristics of translation technology, perception, and the phase model cognition are some of the fundamental ideas that support schema theory. Studies on cognitive translation integrate general and particular models of cognition that are currently accepted and are congruent with language findings (Muoz-Martin, 2010: 174; see also Ahmed, 2023: 873). Understanding and describing translation-related behaviors, such as SL reading and TL writing, within the context of reading and writing models currently accepted in cognitive research is essential (Göpferich, 2017: 409; see also Shreve and Lacruz, 2017: 134). The importance of cognitive processes in translation has been studied by many academics, and cognitive methodologies like schema theory have slowly gained respect in the field of translation studies. Gregory M. Shreve (2006: 27) significantly expands our understanding of the cognitive mechanisms behind translation. She contends that translators must employ their cognitive schemata-mental frameworks or structures—to comprehend, process, and produce the TT. The foundation for the merger of cognitive translation studies is laid forth by Shreve (2006: 28), which sparked more research on the role of schemata in translation technology (see also Shreve and Lacruz, 2017: 128). The word "schema" is used to examine how translators filled in the gaps during the conversion of SL to TL. For example, in a schema for a bedroom, the placeholders might correspond to various bedroom features. Minsky (1975: 211) provides a theory of schemata with placeholders for relevant cognitive properties within the context of a particular lexical item, which can be filled

by the text or by the default values. Researchers then began to describe, classify, and attempt to explain such schemata to further the study of language interpretation and the broader study of reading. Rumelhart and Norman (1978: 23) provide precise descriptions of the three cognitive mechanisms through which these schemata may change during the translation techniques:

- a. "Accretion" (incorporating fresh data).
- b. "Tuning" (information that modifies current data).
- c. "Restructuring" (creating new schemata by the split, fusion, or fundamental modification of existing ones).

They add more precise terms to the umbrella term schemata. According to schema theory, a typical "restaurant schema" would include details on the food products as well as chronologically arranged data in the form of a schema that focuses on goal-oriented sequences that "define a well-known situation". The settings and circumstances for planned acts like paying the check, putting an order for food and drink, and so forth would be included in a "restaurant scene" schema. Many aspects of the cognitive model have placeholders for the various character schemata in addition to event sequences. These character schemata include customers, waiters, chefs, tables, cutlery, food, money, and credit cards. They also have entry conditions that specify prerequisites, such as the customer wants food and the restaurant is open, results "such as the customer no longer wants food, the restaurant has less food, and the restaurant has more money", and props that are used (see also Emmott *et. al*, 2023: 284).

2. Schemata about Narratives and Genres

The schema has been used to explain the narrative's structure. Narratives are frequently considered to be compilations of well-known events. Schema theory illustrates logically how these sequences of events may be related through inferences, providing information about what is omitted and enabling further

interpretation and analysis of what is offered. The importance of combining the reader's existing knowledge with the information presented in the text has long been recognized in literary studies. Specifically, Sanford and Emmott (2012: 112) examine the idea of spots of indeterminacy, arguing that inference-making allows readers to construct an effective model of narrative analysis, which includes incorporating facts about characters and situations, in addition to linking episodes or events. Although events are frequently seen as the primary distinguishing characteristic of a story, Fludernik (2007: 241) contends that the essential characteristic is the necessity of utilizing schemata that reflect human experience. Hühn's (2010: 43) study of eventfulness is an alternative strategy. Important research has also been done on the overall episodes of texts. An early cognitive process of narrative is provided by story schemata. Typical patterns like the problem-solution pattern are included in this. The understanding of particular genres has been connected to the knowledge of particular structures (Corbett, 2006; see also Ahmed, 2022: 239).

Schemata and genres are closely related since both are important for language creation, understanding, and communication. Individuals employ schemas, or cognitive structures or mental frameworks, to organize and understand information. On the other hand, genres are certain types or groups of writings that have similar traits in terms of their structure, content, and communication intent. When a certain genre has instances of schema activation, readers or listeners activate the pertinent schemata connected with that genre (László, 2008: 34; Culpeper, 2009: 29). Schema theory is another tool Culpeper (2009: 29) employs to analyze more complex characters and track how they evolve throughout a text. The word "translation schema" is used in the area of cognitive translation technologies to describe the mental models or cognitive structures that translators employ to analyze, interpret, and generate the target

text. These schemas, which are an important component of the translator's cognitive architecture, direct their decision-making and translation techniques. The translator's experience, command of the source and target languages, cultural background, and familiarity with the text's subject matter all contribute to the development of translation schemas. They become active during translation, assisting the translator in accurately interpreting the meaning of the source text and translating it into the target language. Language patterns, cultural allusions, idiomatic phrases, genre norms, and intertextual links are only a few of the components they include. They help translators locate suitable counterparts, preserve coherence, and resolve any difficulties that may arise throughout the translation process (Kruger and Kruger, 2017: 73; Shreve and Lacruz, 2017: 128; see also Ahmed, 2023: 76). Translators may traverse the complexity of language and culture by comprehending and using translation technologies, ensuring that the translated material delivers the desired meaning while being contextually and culturally suitable for the audience (Kruger and Kruger, 2017: 73; Shreve and Lacruz, 2017: 128).

3. Sensory and Interpretive Schemata of AI

Sensory and interpretive schemata in artificial intelligence (AI) contexts do not feel emotions in the same manner that humans do. On the other hand, we may investigate how emotions might be expressed or incorporated when talking about AI systems that imitate sensory and interpretive processes or when employing metaphors. These may replicate involvement, response, or interaction dynamics in human-AI interactions to support task performance and communication. These systems can simulate translation behaviors that demonstrate responsiveness, engagement, or awareness by including feedback loops, iterative processes, or adaptive algorithms.

Schemata have also been concentrated on how inferences are produced utilizing knowledge stores because of the effect of

cognitive methods on knowledge receipt. But reading is more than just digesting information; to truly experience the world of a text, readers must relate to it as bodily beings. The role of the senses and emotions in language comprehension has received more attention recently because of studies in cognitive stylistics (Burke, 2011: 53, Sanford and Emmott 2012: 24). The importance of emotions is a crucial topic to consider (Burke 2011: 53). The affective component of schema theory explains how readers' emotions are triggered by the texts they read, specifically how they react to suspense. Additionally, data from cognitive stylistics imply that schemata coordinate widespread stereotyping of favorable and unfavorable emotional reactions (Montoro, 2007: 69).

3.1 Literariness: Schema Refreshment in Translation

Schema refreshment occurs when literary texts challenge readers' expectations and introduce new or unconventional ways of expressing ideas, presenting characters, and exploring themes. This cognitive dissonance prompts readers to adapt or expand their existing schemata to accommodate the distinctive elements of the literary work. In the technology of translation and literariness, "schema refreshment" refers to the process by which literary translators encounter and grapple with the distinctive features of literary texts, leading to the need to adapt or expand their existing cognitive schemata to accurately convey the literary qualities of the original work in the target language (Kruger and Kruger, 2017:74). When translating literary texts, such as poems, novels, or plays, translators encounter various elements that challenge their standard schema for translating non-literary texts. Literary works often incorporate creative language use, aesthetic qualities, cultural references, wordplay, and unique narrative styles, which may differ significantly from more straightforward, informational texts (Ferreira and Schwieter, 2017: 91).

To achieve schema refreshment in translation, literary translators possess not only linguistic expertise but also a deep appreciation of the cultural and aesthetic elements of the source text. They engage in a creative and dynamic process of adapting their cognitive schemata to convey the literariness and richness of the original work, ensuring that the translated text resonates with readers in the target language as effectively as the original does with its readers. This idea is related to discourse deviation, according to Cook (1994:182), where a story is considered literary if it may cause the reader's schemata to shift. This indicates that while nonliterary discourse only reinforces or preserves readers' current schemata, literary discourse is schema-refreshing, causing readers to update, revise, or transform their existing schemata. For several reasons, such a claim is debatable. First, non-literary writings that try to enlighten or dispute will always alter schemata, and second, literary texts can frequently support certain preexisting schemata while upsetting others, according to Semino (1997:175). Recognizing the common function of literary works as schema refreshers is beneficial as long as it's not overdone (see also Gavins 2007; Culpeper, 2009:136).

4. Techniques of the Cognitive Model of Translation:

The model of schema analysis in translation recognizes the central role of cognitive translation studies guiding translators' comprehension and inference-making throughout the translation process. By understanding how schemas influence translation, Shreve and Lacruz (2017: 127) gain valuable insights into the cognitive mechanisms involved and can develop strategies to enhance translation quality and cross-cultural communication. **The Cognitive Model of Schema Analysis** in translation typically encompasses the following key aspects (Shreve and Lacruz, 2017: 127):

1. **Schema Activation:** When interacting with the ST, translators engage pertinent schemas based on their past learning and experiences. These schemas aid their comprehension of the text's main ideas and overall message.
2. **Schema Transfer:** The information is transferred by translators from the active schemas in the SL to the equivalent schemas in the TL during the translation process. Finding suitable linguistic and cultural references that transfer the schematic conditioning into the (TL) is required for this transfer.
3. **Processing Schema:** Schema analysis looks at the mental procedures that translators employ to understand the ST and perform data processing. This covers how individuals make links between ideas, clear out ambiguities, and give particular textual elements more priority depending on their schemas.
4. **Cultural and Context schema:** Context and cultural knowledge have an impact on schemas. In translation, schema analysis takes into account how cultural influences affect translators' comprehension of the ST and how they work around cultural variances to create a useful TT.
5. **Interpretation Schema:** The ST must frequently be interpreted by translators and modified to fit the target culture and language norms. Schema analysis looks at how translators choose their interpretations and modify the text while staying true to the original meaning.
6. **Schema-Based Translation:** To retain coherence and successfully communicate meaning, translators may use schema-based tactics such as utilizing metaphors, paraphrasing, or cultural equivalence.

6. Data Collection

The **Cognitive Model of Schema Analysis** in translation involves examining how schemas influence the process of translating texts from one language to another. This model

recognizes that translators rely on their mental frameworks (schemas) to comprehend the ST and make decisions about how to convey its meaning in the TT. Data are collected from the literary work by:

سعداوي، أحمد (٢٠١٣). فرانكشتاين في بغداد. منشورات الجمل. بيروت.	SL
Wright, J. (2018).(Trans.) <i>Frankenstien in Bagdad</i> . Penguin Books.	TL

1. Data Analysis:

Data of the paper involved (5) texts collected randomly from the above-mentioned novel and tabulated according to the strategy of **the Cognitive Model of Schema Analysis**. This is associated with the pattern translation process. Translation will be taken, as in the following:

Text No. 1

ST (p. 11)	" حدث الانفجار بعد دقيقتين من مغادرة باص الكيا الذي ركبت فيه " العجوز ايليشوا أم دانيال. التفت الجميع بسرعة داخل الباص وشاهدوا من خلف الزجاج، وبعيون فزعة، كتلة الدخان المهيبة وهي ترتفع سوداء داكنة الى الأعلى في موقف السيارات قرب ساحة الطيران وارتطم شاهدو ركض الشباب باتجاه موقع الانفجار. وسط بغداد بعض السيارات برصيف الجزيرة الوسطية أو بعضها ببعض وقد استولى الارتباك والرعب على سائقها، وسمعوا حشد أصوات بشرية "متداخلة، صراخ غير واضح ولغط ومنبهات سيارات عديدة".
TT (p. 13)	"THE EXPLOSION TOOK place two minutes after Elishva, the old woman known as Umm Daniel, or Daniel's mother, boarded the bus. Everyone on the bus turned around to see what had happened. They watched in shock as a ball of smoke rose, dark and black, beyond the crowds, from the car park near Tayaran Square in the center of Baghdad. Young people raced to the scene of the explosion, and cars collided with each other or into the median. The drivers were frightened and confused: they were

assaulted by the sound of car horns and of people screaming and shouting".
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Based on how cognitive schemata are activated and modified throughout the translation process, the (ST) and (TT) may be examined from the perspective of schema theory. Schemata are essential for production and understanding, and their influence on translation may be shown in several ways:

1. Cultural Schema:

ST: The original material includes cultural allusions to "Tayaran Square and Baghdad", "ساحة الطيران وسط بغداد", as well as to local customs "شاهدو ركض الشباب باتجاه موقع الانفجار", "people rushing to the explosion site".

TT: To guarantee that the translation appropriately transmits the cultural allusions to the English-speaking audience, the translator updates the schema for cultural aspects.

2. Setting Schema:

ST: The description of the "car park, the square, and the crowd" "حشد أصوات موقف السيارات، Square, at the explosion site activates the reader's schema for spatial settings and urban contexts.

TT: The effect of the explosion is maintained, while the translator modifies the spatial references and setting schema to represent a situation known to the English-speaking audience.

3. Action Schema:

ST: The reader's schema for diverse responses to emergencies is activated by the responses of the individuals "watching, racing, colliding" to the explosion "ارتطام وشاهدوا، ركض".

TT: The translator revises the action verb schema to accurately translate the dynamic scenarios into English.

4. Emotional Schema:

ST: The reader's schema for emotional states in response to catastrophic events is activated by the people's " الارتباك، الارتطام، صراخ وارتطام، الارتباك " "shock, fear, and confusion" reactions.

TT: To guarantee that the translated content has the same emotional impact as the original, the translator must adjust the emotional schema.

5. Interpretative Schema:

ST: The phrase " وسمعوا حشد أصوات بشرية متداخلة، صراخ غير واضح " "unclear sounds of people screaming and shouting" is one example of a detail that the original text leaves open to interpretation.

TT: To keep the ambiguity or to make the translation clearer, the translator updates his schema for interpretive components.

To ensure that the TT accurately reflects the meaning, emotions, and cultural subtleties of the TT, the translation process entails updating and altering the cognitive model of schemata. Successful translations that connect with the target audience and accurately capture the literary quality of the original work depend on the translator's capacity to activate and adjust their schemata.

Text No. 2

ST (p. 25)	كي يجعل لقصته أكثر جاذبية، كان هادي العتاك حريصاً على ايراد " التفاصيل الواقعية. وهو يتذكر هذه التفاصيل كلها ويوردها في كل التي حدثت معه. ها هو في مقهى عزيز مرة يروي فيها احداث القصة على التخت الذي في الزاوية لزجاج واجهة المقهى، يجلس المصري ويمسح على شاربية ولحيته المفرقة، ثم يطرق بقوة بالملعقة الصغيرة في قعر استيكان الشاي ويرشف رشفتين قبل أن يبدأ بسرد الحكاية من وهذه المرة على شرف بضعة ضيوف جدد أغراهم عزيز "، "جديد ان الضيوف؛ : المصري بسماع حكايات وأكاذيب هادي العتاك
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	<p>ضامرة ترتدي نظارة طبية سميقة تعلو أنفاً دقيقاً <u>ألمانية صحفية</u> وشفنتين رقيقتين تجلس مع مترجمها العراقي الشاب ومصور فلسطيني بالإضافة الى بكاميرا محمولة على التخت المقابل لهادي العتاك صحفي شاب أسمر البشرة هو محمود السوادي القادم من مدينة العمارة جنوب العراق والمقيم حالياً في فندق "العروبة" العانة لأبي أنمار".</p>
TT (p. 23)	<p>"TO MAKE THE STORIES he told more interesting, Hadi was careful to include realistic details. He remembered all the details of the things that happened to him and included them every time he recounted his experiences. One day he was in Aziz the Egyptian's coffee shop, sitting on the bench in the corner by the front window and stroking his mustache and his forked beard". "He ground the small spoon nervously into the bottom of the teacup and took two sips of tea before starting to tell his story again, this time for the benefit of some patrons whom Aziz had encouraged to listen to Hadi. The guests were a slim blond German journalist with thin lips and thick glasses perched on her small nose, her young Iraqi translator, a Palestinian photographer, and a swarthy young journalist named Mahmoud al-Sawadi, who came from the town of Amara in southern Iraq and was living in Abu Anmar's Orouba Hotel".</p>

According to schema theory, the activation of the schemata that were modified throughout the translation process may be used to assess the translation of the (ST) into (TT):

1. Cultural Schema:

ST: The source material includes cultural allusions to particular places like "مقهى عزيز المصري", "Aziz the Egyptian's coffee shop" and cultural customs like "يروى فيها احداث القصة", "storytelling in a coffee shop setting" that cause the reader's schema for "Middle Eastern cultural elements" to be activated.

TT: To guarantee that the translation accurately transmits the cultural allusions to the English-speaking audience, the translator updates the schema for cultural aspects.

2. Setting Schema:

ST: The reader's schema for cafe settings, interpersonal interactions, and social gatherings is activated by the description of the "مقهى", "coffee shop", "هادي العتاك", "Hadi's actions," and the "لضيوف", "presence of guests."

TT: The translator must modify the setting schema to represent an English-speaking audience's familiar environment while preserving the atmosphere of the coffee shop scenario.

3. Character Schema:

ST: The ST has a wide range of people, each with their characteristics and biographies, including "هادي العتاك، صحفية ألمانية، "Hadi, the German journalist, her translator, the Palestinian photographer, and the Iraqi journalist."

TT: To correctly represent the many personalities and backgrounds of the characters in English, the translator adopts a schema for character presentation.

4. Action Schema:

ST: The reader's schema for activities connected to storytelling and journalistic techniques is activated by the acts of "هادي العتاك", "ومصور فلسطيني بكاميرا محمولة", "حريصاً على ايراد التفاصيل الواقعية", "Hadi recounting his stories, the photographer with a camera, etc."

TT: To properly translate dynamic scenes and actions into TT, the translator adjusts the action schema.

5. Emotional Schema:

ST: The reader's schema for emotional responses and interpersonal interactions are activated by the emotional state of the guests, the journalist's interest in listening to Hadi's stories, and Hadi's anticipation of recounting his experiences "يبدأ بسرد", "بسماع حكايات وأكاذيب هادي العتاك", "الحكاية من جديد".

TT: To guarantee that the TT reflects the same emotions and interpersonal dynamics as the original, the translator specifies the emotional schema.

6. Interpretative Schema:

ST: Some elements are left up for interpretation in the ST, such as the "German journalist's interest in Hadi's stories" or "the purpose of the guest's presence."

TT: To keep the ambiguity or to make the translation clearer, the translator must update their schema for interpretive components.

For the TT to accurately reflect the content, emotions, cultural subtleties, and literary quality of the source text, the translation process necessitates updating and changing cognitive schemata. A good translation that connects with the target audience and accurately captures the depth of the original work depends on the translator's capacity to activate and adjust their schemata.

Text No. 3

ST (p.43)	"الذي يبلغ الحادية والعشرين من العمر، الأسمر <u>حسيب محمد جعفر</u> النحيف المتزوج من <u>دعاء جبار</u> ويسكن معها وابنتهما <u>زهراء</u> حديثة في غرفة داخل بيت عائلته في قطاع ٤٤ في <u>مدينة الصدر</u> الولادة الكبيرة، والذي يعمل منذ سبعة أشهر حارساً في <u>فندق السدير نوفوتيل</u> قتل في الانفجار الذي تسبب به انتحاري سوداني الجنسية يقود كابسة نفايات مسروقة من أمانة بغداد مملوءة بالديناميت"، "وكان يخطط لتجاوز الباب الخارجي والدخول بالسيارة داخل استعلامات الفندق لإسقاط البناية بالكامل بمن فيها، وفشل في ذلك وهناك يقوم بتفجيرها تجاه المتلاحقة التي أطلقها الحارس الشجاع بسبب الإطلاقات النارية". "سائق الكابسة ما عجل في تفجير الصاعق".
TT (p.35)	"HASIB MOHAMED JAAFAR was twenty-one years old, dark, slim, and married to Dua Jabbar. He lived with Dua and their baby daughter, Zahraa, in Sector 44 in Sadr City, in a room in the house of his large family. Hasib, who had been working for seven months as a guard at the Sadeer Novotel hotel, was killed in an explosion caused by a Sudanese

suicide bomber driving a dynamite-laden garbage truck stolen from the Baghdad municipality". "The bomber was planning to crash through the hotel's outer gate, drive the truck into the hotel lobby, and detonate the explosives, bringing down the whole building. He failed because the guard bravely fired several rounds at the driver, causing him to detonate the explosives early".

The translation of (ST) into English (TT), according to schema theory, is based on cognitive schemata that are active throughout the translation process:

1. Cultural Schema:

ST: "أمانة بغداد مدينة الصدر", Sadr City, Baghdad Municipality, and other places mentioned in the source material are cultural allusions that cause the reader's schema for "Middle Eastern geographical settings" to be activated.

TT: To make sure that the translation accurately reflects the cultural allusions to the English-speaking audience, the translator uses schema for cultural aspects.

2. Character Schema:

ST: The ST gives information on "age, appearance, marital status, and occupation" and activates the reader's schema for the character portrayal "حسيب محمد جعفر", "Hasib Mohamed Jaafar".

TT: To correctly represent the physical attributes and history of the character in English, the translator develops a schema for character description.

3. Family Schema:

ST: The ST describes "Hasib living in a room in the home of his extended family with his wife, Dua, and their infant daughter, Zahraa." The reader's schema for relating to family members and living conditions is activated by this.

TT: The family schema is modified by the translator to reflect a setting that is known to the English-speaking audience while preserving the dynamics of the family as they are presented in the original.

4. Action Schema:

ST: The reader's schema for perilous situations and valiant responses to dangers is activated by the "suicide bomber," "the guard," and "the gunfire."

TT: To guarantee that the dramatic situations and the bravery of the guards are conveyed in English, the translator rendered the action schema.

5. Emotional Schema:

ST: The reader's schema for feelings relating to sad occurrences and heroic deeds is activated by the emotional effect of the "explosion," "the guard's bravery," and the "loss of life."

TT: To guarantee that the translated content elicits the same feelings and impacts as the original, the translator translates the emotional schema.

6. Interpretative Schema:

ST: Some information in the ST is left up for interpretation, such as "the suicide bomber's motives" and "the guard's state of mind during the incident."

TT: The translator updates the schema of interpretive factors, weighing the pros and cons of maintaining ambiguity or translating something. For the TT to accurately express the meaning, feelings, cultural subtleties, and impact of the source material, it is necessary to update and modify cognitive schemata. Schemata activation and adaptation by the translator are essential for producing a translation that connects with the intended audience and accurately captures the complexity of the original work.

Text No. 4

ST (p.49)	<p>في ساحة الطيران أيقظه الانفجار الذي حدث في السابعة والنصف" ولكنه لم ينهض من فراشه كان يشعر بصداع رهيب وظل متناوماً، ولم يصح بشكل كامل إلا مع رنين هاتفه المحمول في حدود العاشرة كان رئيس تحرير مجلة الحقيقة التي يعمل فيها على صباحاً". "الطرف الثاني من الخط: لماذا انت نائم حتى هذه الساعة؟ آآ . أنا عليك ان تنهض من فورك وتذهب الى مستشفى .. صور محمود" الكندي لأخذ للجرحى وتتحدث مع الكادر الطبي والشرطة و كذا وكذا . . . فاهمني؟! نعم ... هسه اروح رأساً . الآن الآن وليس غداً كما "أو كي محمود؟ . . تقول فيروز"</p>
TT (p.63)	<p>"MAHMOUD AL-SAWADI WAS AWOKEN at 7:30 a.m. by the explosion in Tayaran Square, but he didn't get out of bed. He had a terrible headache and was still sleepy". "He didn't wake up until about 10:00 a.m. when his cell phone rang. It was the editor of al-Haqiqa, the magazine where he worked". "Why are you still asleep? I... I,". "Mahmoud stammered. "Mahmoud, get up right away and go to the Kindi Hospital to take pictures of the injured and speak with the doctors, the police, and so on. Understand?" "Yes, I'll head there now." "Now, now, not tomorrow, Fairuz sings. Okay, Mahmoud?"</p>

According to the schema theory, several elements of the schemata are used while translating the (ST) into (TT):

1. Temporal Schema:

ST: The ST contains explicit time references that prompt the reader's schema for time-related events and timetables, such as "السابعة والنصف", "العاشرة صباحاً", "7:30 a.m.", "10:00 a.m.", and the mention of "tomorrow."

TT: The translation keeps the original's chronological order of events while modifying the temporal schema to reflect a context that is known to the English-speaking audience.

2. Character Schema:

ST: Mahmoud al-Sawadi is introduced in the ST, along with details on "his state of being awakened by the explosion" and "his job as a photographer for a magazine."

TT: The character characterization schema for "Mahmoud" was transferred to appropriately communicate his woken condition and his professional position in English.

3. Communication Schema:

ST: Instructions are given and verified during a chat between "Mahmoud and his editor" that is included in the ST. The reader's paradigm for dialogue and interpersonal contact is activated by this.

TT: The communication schema is included in the translation to guarantee that the rendered conversation accurately transmits the instructions and confirmation between "Mahmoud and his editor in English".

4. Cultural Schema:

ST: The reader's schema for cultural allusions and music is activated by the ST's mention of "كما تقول فيروز", "Fairuz, an Arab female singer," as well as "lyrics from one of her songs."

TT: To guarantee that the English-speaking audience understands the allusion to Fairuz and her song, the translator updates the schema for cultural aspects.

5. Interpretative Schema:

ST: Some aspects of the ST are unclear even such as "Mahmoud's emotions" or "thoughts upon waking up" and "receiving instructions from his editor".

TT: The translator makes thoughtful considerations about whether to preserve uncertainty or enhance clarity in the translation by using the schema of interpretative components. TT accurately transmits the content, feelings, cultural subtleties, and impact of the ST, the translating process entails updating and altering cognitive schemata. A good translation that connects with the TT audience and accurately captures the depth of the original

work depends on the translator's capacity to activate and adjust their schemata.

Text No. 5

ST (p.63)	<p>تعال يا ... إنهض يا دَنِيَّه ... صاحت عليه الشوا: إنهض يا دانيال! فنهض من مكانه فوراً "جاءه الأمر الذي تحدث عنه الشاب . "ولدي أشعلت . "الميت ذو السوارين الفضيين في مقبرة النجف ليلة أمس التي تكونت من الجثة المجمعة العجوز بندائها هذه التركيبية العجيبة من بقايا جثث متفرقة وروح حارس الفندق التي فقدت جسدها". "أخرجته العجوز من المجهول بالاسم الذي منحت له: دانيال". "نظر دانيال باتجاهها فشاهدها تقف في الفجوة المتخلفة عن الغرفة المنهارة بذؤابات شعر أبيض تهفهف في الهواء خارجة". في الطابق الثاني "تحت عصابتها السوداء المربوطة دون احكام على رأسها تلتحف بسترة صوفية ضيقة داكنة اللون ممزقة الأردن وأسفل منها القط الأغبر منتوف الشعر ينظر إليه بعيون متسعة ومرعوبة يموء بشكل متقطع بأصوات خافتة وقصيرة وكأنه يتحدث مع من "الضئيل وهي : نفسه</p>
TT (p.49)	<p>"GET UP, DANIEL," Elishva shouted. "Get up, Danny. Come along, my boy." "He stood up immediately. So this was the command that the dead boy with the silver bangles in the cemetery in Najaf had talked about the night before". "With her words, the old woman had animated this extraordinary composite—made up of disparate body parts and the soul of the hotel guard who had lost his life". "The old woman brought him out of anonymity with the name she gave him: Daniel". "Daniel saw the old woman standing in the upstairs room that had collapsed. Wisps of gray hair stuck out from under the black headband she had tied loosely around her small head. She was wrapped tightly in a dark woolen jacket with torn sleeves, and at her feet the molting gray cat looked at Daniel with wide, frightened eyes, mewling softly as if talking to</p>

| itself".

According to schema theory, how cognitive schemata are engaged throughout the translation process determines how ST is transferred into TT:

1. Character Schema:

ST: The ST introduces "Elishva and Daniel," describing their "interaction and appearance" in depth. To analyze anonymity, "Elishva addresses Daniel" using loving expressions such as "my boy" and gives him the name "Daniel".

TT: The emotional bond between "Elishva and Daniel" and the "significance of the name given to him in English" are both faithfully conveyed by the translation by transferring the schema of the characters' portrayals.

2. Emotion Schema:

ST: The ST expresses feelings of urgency through Elishva's yelling, tenderness through her sweet remarks, and terror through the gray cat's terrified gaze and mewing.

TT: To guarantee that the translated text accurately portrays the variety of emotions felt by the characters in TT, the translator changes the emotional schema.

3. Setting Schema:

ST: The ST activates the reader's schema for spatial contexts and locales by describing the "upstairs room" that has fallen and the graveyard in "Najaf".

TT: While preserving the vision and ambiance of the source scenes, the translator makes use of the setting schema to represent a context that is known to the English-speaking audience.

4. Interpretative Schema:

ST: The ST leaves certain information up for interpretation, like the characteristics of the "extraordinary composite" and the relationship between "Daniel" and the "dead boy" at the graveyard.

TT: The translator updates the schema of interpretive factors, weighing the pros and cons of maintaining ambiguity or translating something.

5. Cultural Schema:

ST: The mention of "Najaf, a significant City in Iraq with religious and cultural significance" in the ST might cause the reader's schema for Middle Eastern places to come to life.

TT: To ensure that the English-speaking audience understands the reference to Najaf correctly, the translator must update their schema for cultural aspects. TT expresses the feelings, cultural quirks, and narrative images of the ST, the translation process entails updating and changing cognitive schemata. A good translation that connects with the target audience and accurately captures the depth of the original work depends on the translator's capacity to activate and adjust their schemata.

Conclusions

The implications of the function of schema theory in translation emphasize the importance of this theory in comprehending the mental operations involved in translation. Key conclusions include the following:

1. Schema theory offers important insights into the thought processes that translators employ to understand the (ST) and produce the (TT). To make sense of the text and generate an accurate translation, translators rely on their prior knowledge and schemata.
2. Schema theory places a strong emphasis on the importance of past knowledge and experience in understanding and interpreting the ST's linguistic and cultural components.
3. Schemas aid in the cultural translation process. To impart culturally acceptable language and prevent any misunderstandings or misinterpretations in the TT, translators depend on their cultural schemata.

4. Translators can handle ambiguity in the ST with the use of schema theory. By choosing the best translation equivalent in the TT, they employ their schemata to resolve ambiguities.
5. Although the schema theory has a lot to say about how the mind works, it also has several problems and restrictions. Different translation choices may result from translators' variances and various cultural schemata.
6. AI system design is influenced by schema theory, which shapes the way data is arranged and handled. At the same time, advances in AI strengthen the relationship between human cognition and machine intelligence by providing insightful new information about cognitive processes.

Recommendations:

1. Apply cognitive schemata theory concepts to AI models to improve language creation, comprehension, and interpretation.
2. AI models may better comprehend and represent the underlying context by including cognitive schemata principles, which improves translation fidelity and quality.
3. Provide AI-driven translation systems that adjust user experiences according to human preferences, language patterns, cultural contexts, and cognitive schemas.

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