

## Taxis and Logico-Semantic Relations in English-Arabic News Articles

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### Abstract

This study applies Halliday's Systemic Functional Linguistics (SFL) framework to analyze taxis and logico-semantic relations in English and Arabic news articles. The study draws on a bilingual corpus of 180 BBC news articles (covering politics, economics, and sports) published between 2023 and 2024. Using Python-based automation and manual validation, as well as both quantitative and qualitative methods, the study identifies structural patterns and translation shifts. The findings reveal language- and genre-specific preferences: English news articles favor paratactically linked clauses, whereas Arabic news articles exhibit a stronger preference for hypotaxis. Expansion was the most frequent logico-semantic relation in both languages, with enhancement being the dominant subtype in both languages. In terms of projection, English employed locution more often than Arabic, reflecting genre and stylistic differences. The analysis showed that while shifts in translation taxis and logico-semantic relations occur, a substantial portion of relations are preserved, indicating high structural and semantic fidelity to the source text. These findings offer valuable insights for English-Arabic news translations and contribute to a deeper understanding of the syntactic complexity and coherence in cross-linguistic journalistic discourse.

**Keywords:** SFL, taxis, logico-semantic relations, news articles, BBC, Python

### 1. Introduction

Language is not merely a means of communication used by people to interact with each other, but a structured system through which individuals construct experiences and beliefs, and enact social relationships. In today's globalized media environment, this system becomes particularly salient, as linguistic choices significantly contribute to the interpretation of international events. The translation of news articles across different languages plays a vital role in shaping public perceptions of international events (Al Salem et al. 2023). It goes beyond simply conveying lexical meaning, as it requires thoughtful handling of the structural and rhetorical elements to ensure that the coherence and stylistic intent in the target language (TL) are preserved. Consequently, the translation of news articles requires a linguistically informed framework capable of capturing and interpreting the multiple layers of structural and semantic choices involved. With the condensed and rapid nature of journalistic discourse, translators are required to make rapid and context-sensitive choices that affect how information is interpreted in the TL. Moreover, to analyze such choices systematically and semantically, a linguistically grounded framework is required.

One of the most influential linguistic models used in language analysis is Systemic Functional Linguistics (SFL), developed by M.A.K. Halliday. SFL focuses on the role of context in the analysis of language functions, emphasizing investigations of the structure of language and how language is used to achieve people's intentions within a social context (Halliday & Webster, 2009). From this perspective, texts are a unit of language that expresses meaning (Halliday & Hassan, 1989). Text analysis is an essential approach to studying texts, as it helps convey the ideology, social elements, and culture of a text. It begins by analyzing words, phrases, and clauses. Clause complexes play a pivotal role in organizing ideas and structuring information, particularly within journalistic discourse, where multiple perspectives and facts are frequently interlinked within a single sentence. There are two elements that SFL recognizes in clause complexes: interdependence (taxis links) and meaning (logico-semantics). **Taxis** refers to the dependency or independence of a clause upon another. There are two options for taxis: **parataxis** (where the clauses are in an equal status) and **hypotaxis** (where the clauses are in an unequal status) (Halliday & Matthiessen, 2014, p. 440). **Logico-semantic relations**

describe the semantic relationships between clauses, specifically how the dependency or independence of clauses builds upon the experiential meanings of the clauses they are connected to (Eggins, 2004, p. 270). There are two subcategories of logico-semantic relations: **expansion**, in which the primary clause expands the secondary clause, and **projection**, in which the secondary clause is projected by the primary one (Halliday & Matthiessen, 2014, p. 443). Expansion is further subcategorized into **elaboration**, **extension**, and **enhancement**; on the other hand, projection is subcategorized into **locution** and **idea**.

Limited research has been conducted to analyze taxis and logico-semantic relations in English-Arabic translations. To fill this gap, this corpus-based and genre-based study adopts Halliday’s SFL framework to analyze taxis and logico-semantic relations in English-Arabic translations. Building on the theoretical insights of previous SFL-based translation studies, this study applies SFL to news articles, specifically political, economic, and sports news articles. It provides a detailed examination of how taxis (parataxis and hypotaxis) and logico-semantic (expansion and projection) relations function across English and Arabic news articles by compiling a parallel corpus from English texts and their Arabic translations. It identifies the similarities and differences in the usage of taxis and logico-semantic relations between the two languages. Moreover, it examines the translation choices made, or whether the source language (SL) taxis and logico-semantic relations are maintained in the target language (TL), or there are shifts in the types of taxis and logico-semantic relations in the translation from SL into TL. In doing so, this paper contributes to research in the fields of TS and contrastive linguistics by shedding light on how meaning is restructured across languages and how translation choices and shifts might influence the textual cohesion and rhetorical organization of the translated text.

**2. Literature Review**

SFL is a socio-linguistic and contextually oriented framework where language is embedded in culture, and understanding the proper meaning is shaped by its cultural context (Manfredi, 2008). According to Halliday (2004), the purpose of SFL is to understand the quality of texts, examining why a text conveys a specific meaning and why it holds the value it possesses. Halliday (1992) views translation as an activity of creating meaning. Hence, any linguistic theory related to the act of translation must focus on meaning and should “embody a functional semantics” (p.15). One of the core analytical units in SFL is clause complexing, which refers to how clauses are interconnected, forming larger units known as clause complexes. For Halliday & Matthiessen (2014), a *clause nexus* refers to the linkage between a pair of clauses within a clause complex (p. 8). It usually consists of a ‘primary clause’ and a ‘secondary clause’. According to Halliday & Matthiessen (2014), the clause-complexing system networks comprise three subsystems operating within clauses, namely taxis, logico-semantic type, and recursion (p. 438), as illustrated in Figure 1.

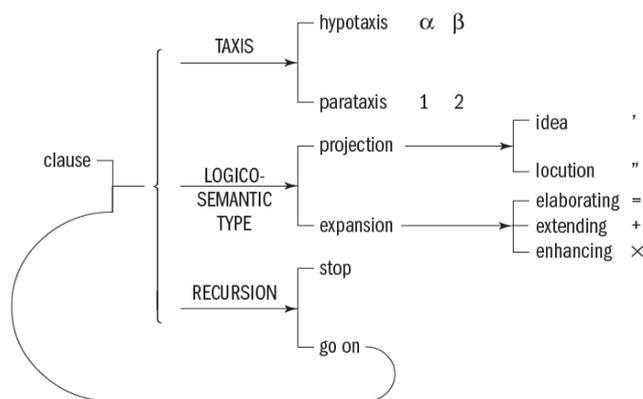


Figure 1. The clause complexing system networks

**Taxis** refers to the degree of interdependency between clauses. If the clauses are in an equal status, they are in a paratactic relation; on the other hand, if they are unequal, they are in a hypotactic relation (Halliday & Matthiessen, 2014, pp. 438-439). The other dimension of clause complexing system networks is logico-semantic relations, in which the semantic relations are described. Logico-semantic relations include two types: ‘expansion’ and ‘projection.’ In **Expansion**, the secondary clause expands the primary one. It includes three subcategories: **elaboration** (one clause clarifies and explains the other clause (or part of it) by restating it), **extension** (one clause extends another by adding new elements to it), and **enhancement** (one clause enhances the meaning of the other clause by referring to time, manner, place, or condition) (Halliday & Matthiessen, 2014, pp. 462-479). As for **projection**, the secondary clause is projected through the primary one, and it involves **locution**, which refers to “what someone said” (quoting), and **idea**, which refers to “what someone thought”.

Although the theoretical foundations of taxis and logico-semantic relations are well-established and developed within the SFL framework, their application in Arabic, and especially in the context of translation, has received limited attention. Several studies have examined related phenomena. Fattah (2010) investigated clause complexing and conjunctive explicitation, adopting SFL, in a corpus of Arabic translation and comparable non-translations of Arabic texts in history and philosophy, and found a consistent tendency for explicitation features in different metafunctional environments. Moreover, Siddique (2014) investigated the use of SFL in analyzing Arabic discourse across various genres, including media and literature. The findings of his paper indicated that SFL is a valuable tool for Arabic discourse analysis and can be used to enhance the understanding of Arabic texts. In addition, he recommended further research on SFL and the Arabic language, analyzing different genres to build a more comprehensive understanding of Arabic language use. Othman (2019) conducted a similar study to Fattah (2010), motivated by SFL, where he investigates the explicitation and implicitation features in translated texts. His analysis revealed shifts in the realization of cause-and-effect relationships across different metafunctional environments. More recently, Othman & Al Qutob (2022) conducted a quantitative SFL-based study, focusing on investigating taxis and logico-semantic relations in two corpora: English-Arabic religious texts and original Arabic texts in the same genre (non-translation). The results showed that, in general, Arabic writing prefers parataxis over hypotaxis, and this was evident in the analysis of original Arabic texts. As for the analysis of Arabic translations, they found that these TTs are closer to English ST than the Arabic non-translations. This was attributed to the translators' literal approach in translating the *clause nexus*. Despite these valuable contributions, there remains a lack of research on taxis and logico-semantic relations in English and Arabic (specifically, shifts) within the journalistic genre. By applying SFL's framework, the study contributes to previous research in this field.

### 3. Methodology

#### 3.1 Corpus

This study is based on a purpose-built bilingual corpus comprising 180 news articles published by the BBC in 2023-2024, focusing on specific subgenres (politics, economics, and sports). The corpus includes English source texts (STs) and their Arabic translations (TTs). The total corpus size is approximately 177,368 words. To prepare the corpus for analysis, all the selected articles were first cleaned by removing extraneous elements such as HTML tags, titles, authors' names, pictures, captions, and ads. After that, each article was segmented into sentences. This step was crucial to having a manageable text suitable for analysis, rather than a complex one. The STs were easier to divide since sentence boundaries are clear; English sentences start with an initial capital letter and end with a full stop. However, dividing a text into sentences in Arabic requires some effort, as in some cases, a whole paragraph can comprise a single sentence. NLP tools<sup>1</sup> were used to split the texts into sentences; for English texts, spaCy<sup>2</sup>/NLTK tool was used, while for Arabic texts, Stanza/CAMEL was employed. These tools utilize advanced algorithms to detect sentence boundaries by identifying sentence breaks, such as punctuation marks and syntactic structures. To identify whether the clauses are simple or complex, Halliday and Matthiessen's (2014) categorization of clause complexes in English was followed. Moreover, the criteria proposed by Al-Kohlani (2010) and the read-aloud strategy proposed by Dicken (2010) were applied to identify the type of Arabic clause complexes. To ensure accurate alignment between the ST and TT, all texts were manually aligned at the sentence level to maximize accuracy and identify structural and semantic correspondences that automated tools may overlook. Moreover, a parallel corpus would facilitate the identification of translations of clauses focusing on taxis and logico-semantic relations, as well as the verification of any shifts in the translation process.

#### 3.2 Data Analysis

Once the data were aligned, the next step was the lexico-grammatical analysis, where taxis and logico-semantic relations were identified. Since this study examines both the frequencies of taxis and logico-semantic relations and their functional realization in the context, a mixed-methods approach was essential. This analysis in this study combined automated and manual methods, as well as quantitative and qualitative analysis. The quantitative analysis, enabled by Python automation, provided the systematic counts of taxis and logico-semantic relations in the corpus. Moreover, qualitative SFL-based analysis complemented this by examining how these relations operate semantically in each language, and how they might shift in translation. This combination of qualitative and quantitative analysis enabled the study to identify patterns in each

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<sup>1</sup> NLP (Natural Language Processing) is a subfield of AI that enables computers to comprehend and interpret human language by combining machine learning and computational linguistics to analyze data.

<sup>2</sup> spaCy is an open-source Python library that is designed for NLP tasks.

language and understand how these patterns construct meaning, which is essential for a bilingual SFL-based translation analysis.

In the first stage, the selected data was analyzed automatically using *Python*<sup>3</sup> Scripts utilizing NLP tools. These custom *Python* scripts were developed to initially identify: taxis types, logico-semantic relations, and translation shifts (by defining changes in these relations during translation). The Python scripts utilized NLP libraries, including spaCy, NLTK, and CAMEL tools, and relied on rule-based matching of discourse markers and syntactic structures. This automated phase helped speed up the initial tagging of the corpus. After the automated stage, all the classifications were manually examined and reviewed to ensure accuracy and validity. Finally, the findings were analyzed quantitatively (to determine the frequencies of taxis and logico-semantic relations), qualitatively (to interpret how these relations function in each language and subgenre), and comparatively (to examine the differences between English and Arabic and to identify any translation shifts). By combining efficiency (automated analysis) and human linguistic insights (manual analysis), this study offers a detailed and analytical examination of how inter-clausal relations are maintained or altered in English-Arabic translation.

#### 4. Results and Discussion

This section presents a comparative overview of clause complexing patterns in English and Arabic, focusing on two key dimensions: taxis (parataxis and hypotaxis) and logico-semantic relations (expansion and projection). It aims to highlight the systemic preferences and translation tendencies in journalistic discourse across the two languages.

##### 4.1 Taxis in English and Arabic News Articles

In terms of taxis, the analysis revealed a difference in the use of tactic relations between English and Arabic news articles, with English favoring parataxis and Arabic showing a tendency towards hypotaxis. However, the difference was not substantial. Overall, both languages employed paratactic and hypotactic structures in broadly comparable proportions, indicating a degree of structural convergence within the news genre. Table 1 presents the percentages of paratactic and hypotactic clause complexes in English and Arabic news articles.

Table 1. Tactic relations in news articles

Taxis	English	Arabic
Parataxis	54.69%	40.93%
Hypotaxis	45.31%	59.07%

For example, *Thousands have been wounded, and the homes of tens of thousands of others have been destroyed*. In this sentence, two independent clauses are linked by the coordinating conjunction *and*, forming a paratactic clause complex. This preference reflects a journalistic style in English that favors explicit and clearly defined clause boundaries to enhance overall readability and immediacy. In contrast, Arabic news articles demonstrated a stronger tendency toward hypotaxis, accounting for 59.07% of the clause complexes. This suggests that Arabic journalistic discourse frequently employs subordination to establish more intricate syntactic relationships between clauses. It was noticed that Arabic clause complexes tended to be structurally long and dense, consisting of multiple subordinated and embedded clauses, reflecting the language's syntactic flexibility and rhetorical density. For instance,

لم يكن وقف إطلاق النار ليتأخر أكثر، إذ قالت محللة لبنانية خلال مؤتمر عن الشرق الأوسط في روما إنها لم تتمكن من النوم مع اقتراب الساعة المحددة لوقف إطلاق النار.

Transliteration: *lam yakun waqfu iṭlāqi an-nāri li-yata'akhhara akthar, idh qālat muḥallilatun lubnāniyyatun khilāla mu'tamarin 'ani ash-sharqi al-awsaṭi fī Rūmā innahā lam tatamakkan mina an-nawmi ma'a iqtirābi as-sā'ati al-muḥaddadati li-waqfi iṭlāqi an-nāri.*

Translation: The ceasefire could not have been delayed any longer, as a Lebanese analyst said during a Middle East conference in Rome that she had been unable to sleep as the scheduled hour of the ceasefire approached.

In this clause complex, the main independent clause *لم يكن وقف إطلاق النار ليتأخر أكثر* [*lam yakun waqfu iṭlāqi an-nāri li-yata'akhhara akthar* / *The ceasefire could not have been delayed any longer*] is linked to the projected complex clause *إذ قالت محللة لبنانية خلال مؤتمر* [*idh qālat muḥallilatun lubnāniyyatun khilāla mu'tamarin* / *as a Lebanese analyst said during a Middle East conference*] via the usage of *إذ* [*idh* / *as* ] and a comma. Moreover, the primary clause in the projected complex clause *إذ قالت محللة لبنانية خلال مؤتمر عن الشرق الأوسط في روما* [*idh qālat muḥallilatun lubnāniyyatun*

<sup>3</sup> *Python* is developed by Guido van Rossum in 1991, it emphasizes code readability and supports programming paradigms.

*khilāla mu'tamarin 'ani ash-sharqi al-awsaṭi fī Rūmā* / as a Lebanese analyst said during a Middle East conference in Rome] is linked to a dependent projected clause *إنها لم تتمكن من النوم مع اقتراب الساعة* [*innahā lam tatamakkan mina an-nawmi ma'a iqtirābi as-sā'ati* / that she had been unable to sleep as the scheduled hour], illustrating a layered hypotactic structure. Such structures are typical of Arabic news articles, where hypotaxis supports both rhetorical elaboration and narrative complexity.

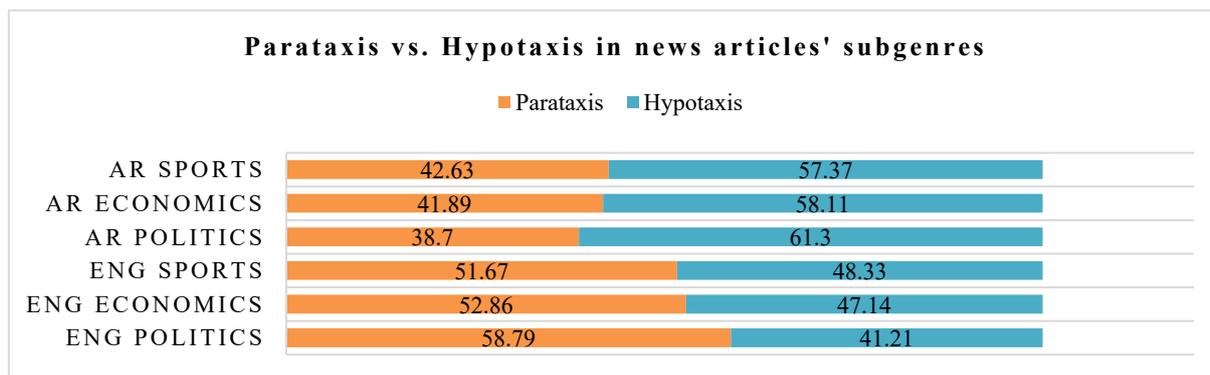


Figure 2. Distribution of Tactic relations across English and Arabic News Articles' subgenres

Moreover, the analysis revealed an interaction between language structure and genre conventions. In English news articles, parataxis was dominant across all three sub-genres, with the highest usage observed in political news articles. This reflects a general tendency in English journalism to present actions and statements in a linear and coordinated manner, promoting clarity and narrative cohesion, particularly in political news articles where rapid coordination of ideas is stylistically favored. On the other hand, hypotaxis was dominant across all Arabic sub-genres of news articles, especially in political articles, where the use of hypotactic structure reached 61.3%. The higher use of hypotaxis in Arabic news articles reflects a rhetorical and stylistic preference toward subordination and syntactic embedding, aligning with the broader characteristics of Arabic discourse that often value elaboration and clause chaining. The use of hypotaxis allows Arabic journalists to build logically connected and layered discourse. Nonetheless, the relatively balanced use of taxis across the sub-genres in both languages indicates that journalistic conventions exert a harmonizing effect, promoting the use of both paratactic and hypotactic structures to fulfill narrative and informational needs. In addition to the differences in clause tactic relations, the analysis of the selected data identified the most frequently used markers in paratactic and hypotactic relations in English and Arabic news articles.

Table 2. Frequent Taxis Markers in English and Arabic

Language	Taxis	Frequent markers
English	Parataxis	<i>and, but</i>
	Hypotaxis	<i>that, as, who</i>
Arabic	Parataxis	<i>و</i> [wa/and], <i>لكن</i> [lakin/but], <i>كما</i> [kamā/as]
	Hypotaxis	<i>حيث</i> [allaṭī/which, who], <i>الذي</i> [allaḍī/which, who], <i>[ḥaythu/where, in which]</i>

In English news articles, paratactic relations were most commonly marked by coordination, reflecting rapid sequencing of actions and straightforward reporting. As for hypotactic relations, they were often marked by subordinating conjunctions, where justification and explanation are more prevalent. As for Arabic news articles, paratactic relations were marked by *wa*, and hypotaxis was encoded through relative pronouns. Moreover, it was noticed that paratactic clauses are linked by punctuation, e.g., a colon or a semicolon. For instance, *'They unload the pack horses and a pick-up truck meets them at our road: we've motorized the smuggling business.'* consists of three clauses forming a paratactic clause complex. The first two clauses (*They unload the pack horses*) and (*and a pick-up truck meets them at our road*) are linked by a coordinating conjunction 'and' as the two actions occur in a sequence. The third clause (*: we've motorized the smuggling business*) is introduced by a colon, signaling an elaboration of actions.

#### 4.2 Logico-semantic Relations in English and Arabic News Articles

The analysis of logico-semantic relations revealed distinct preferences in how these relations are realized across English and Arabic news articles. In both languages, there was a higher tendency to use expansion over projection, though with different emphases on subtypes. In English news articles, expansion accounted for 77.59% of all clause complexes, with enhancement 31.57% and extension 27.56% as the most dominant subtypes. As for projection, it comprised 22.4% where locution accounted for 16.53%, reflecting the frequent use of quotations and reported speech in journalistic writing. For instance, *Germany is hosting the Euro 2024 tournament later this month, and Nagelsmann said his team would be playing "for everyone in the country".* This paratactic clause complex exemplifies expansion, specifically

extension relation: **addition**, by using the conjunction ‘and’ and projection: **locution**.

As for Arabic news articles, they demonstrated an even stronger preference for expansion (85.51%), particularly elaboration (28.22%) and enhancement (31.37%). Projection was less common, at 14.47%, with locution (spoken statements) accounting for 13.27% and idea (mental processes) for 1.20%, suggesting a tendency in Arabic news articles to prioritize reporting verbal content over expressing internal thoughts or mental processes. For instance;

وقال: "دعم بايدن إسرائيل طوال العام، لكنه لم يحظ بتأييد لأسباب لها طابع ظاهري أكثر من كونها قضايا حقيقية"

Transliteration: *wa-qāla: "da 'ama Bāyidin(u) Isrā'īl(a) tuwāla al-'āmi, lakinnahu lam yahza bi-ta'yīdin li-asbābin lahā ṭābi'un zāhirīyyun akthara min kawnihā qadhāyā haqīqīyyah."*

Translation: He said: "Biden supported Israel throughout the year, but he did not receive support for reasons that appear more superficial than genuinely substantive."

This paratactic clause complex exemplifies extension relation: **contrast** by using the conjunction لكن [lakin/but], and projection: **locution** since it quotes someone. Also, it should be noted that there is an embedded hypotactic clause لأسباب حقيقية [li-asbābin lahā ṭābi'un zāhirīyyun akthara min kawnihā qadhāyā haqīqīyyah/for reasons that appear more superficial than genuinely substantive] functioning as a hypotactic enhancement: **cause**, explaining the previous action.

Moreover, locution was usually marked by reporting verbs such as قال [qāla/said], صرح [ṣarraḥa/stated], أضاف [aḍāfa/added], presenting either direct quotation or indirect quotation. As for Idea, it was usually marked by verbs as اعتقد [i'taqada/believed, thought], ظن [ẓanna/thought, presumed], as in:

أعتقد أن المجتمع لم يستقبل ذلك بشكل جيد، وهو أمر مفهوم تماماً .

Transliteration: *'a'taqidu 'anna al-mujtama'a lam yastaqbil dhālika bi-shaklin jayyid, wa-huwa 'amrun mafhūmun tamāman.*

Translation: I believe that society did not receive that well, and this is entirely understandable.

The mental process أعتقد [ 'a'taqidu/I believe] projects the speaker's opinion جيد بشكل جيد [ 'a'taqidu 'anna al-mujtama'a lam yastaqbil dhālika bi-shaklin jayyid/I believe that society did not receive that well] that is introduced by the marker أن [ 'anna /that], forming a hypotactic projection of idea. This clause is linked paratactically with the second clause via *wa*, elaborating on the previously projected opinion.

Extension was widely used in both English and Arabic news articles, reflecting its functional role in presenting information cumulatively, contrasting viewpoints, and outlining sequential events. In English news articles, additive and contrastive connectors such as ‘and’ and ‘but’ were frequently used, enabling the placement of statements and viewpoints from opposing political entities in parallel without interpretation, thereby maintaining journalistic neutrality. Similarly, extension in Arabic news articles was particularly evident through additive and alternative connectors such as و [wa] and أو [aw/or]. This approach fosters a coherent narrative of politically sensitive content and upholds the journalistic standard of neutrality. For example,

لقد سحقّت إسرائيل محور المقاومة الإيراني، والآن تم تفجير ه بسبب الأحداث في سوريا .

Transliteration: *laqad saḥaqat Isrā'īlu miḥwara al-muqāwamati al-'irānīya, wa-l-'āna tummiya tafjīruhū bisababi al-aḥdāthi fī Sūriyā*

Translation: *Israel has crushed the Iranian axis of resistance, and now it has been blown up because of the events in Syria.*

In the paratactic clause complex, the second clause adds additional events to the first one by using the conjunction *wa* (**extension: addition**).

Enhancement was the most frequent subtype in both English (31.56%) and Arabic (31.37%). In sports news articles, enhancement was particularly prevalent in both English and Arabic, reflecting the need to report sequences of actions and explain causal relationships between the events. Temporal enhancement was frequently utilized within paratactic structures to narrate sequences of events and support the dynamic nature of sports journalism, such as: *After Sunday's match Sagiv Jehezkel was briefly detained in the southern city of Antalya and accused of incitement.* The paratactic clause complex consists of two clauses joined by the coordinating conjunction ‘and’, and the temporal phrase *After Sunday's match* enhances the context of both events within a shared temporal frame. Similarly, in Arabic sports articles, enhancement is often realized through temporal subordinators, as in:

واستغل خطأ نوير النادر ثم سجل مرة أخرى بعد ثلاث دقائق ليحقق الملكي فوزاً مذهلاً .

Transliteration: *wa-staghalla khaṭa'a Nūyir an-nādir, thumma sajjala marratan 'ukhrā ba'da thalāthi daqā'iq(a) li-yuḥaqqiqā al-malikiyy(u) fawzan mudhilan.*

Translation: *He capitalized on Neuer's rare mistake, then scored again three minutes later to secure a stunning victory for the Royal club.*

Moreover, enhancement appeared frequently in economic news articles, often to explain trends or outcomes using causal or conditional markers. For example, **1 $\alpha$**  "If we want to provide for our elderly and our children, **1 $\beta$**  we have to live away from our loved ones and work in other provinces. This hypotactic clause complex functions as a hypotactic enhancement of condition, where the dependent clause (1 $\alpha$ ) states the requirement for the actions stated in the dependent clause (1 $\beta$ ) via 'if'. Another example;

1 $\alpha$  على الرغم من أن كل شخص في العالم تقريبا يتنفس الآن هواء ملوثا بطريقة ما، 1  $\beta$  إلا أن قصة تلوث الهواء هي إحدى قصص عدم المساواة البيئية.

Transliteration: 'alā ar-raġmi min 'anna kulla shakhṣin fī al-'ālam(i) taqrīban yatanffāsu al-'āna hawā'an mulawwaṭan bi-ṭarīqatin mā, 'illā 'anna qisṣata talawwuthi al-hawā'i hiya iḥdā qisṣi 'adami al-musāwāti al-bī'iyah.

Translation: *Although almost everyone in the world is now breathing polluted air in one way or another, the story of air pollution remains one of the stories of environmental inequality.*

This hypotactic clause complex illustrates the enhancement of concession. The dependent clause (1 $\alpha$ ) is introduced by a concessive marker [على الرغم من أن 'alā ar-raġmi min 'anna /Although], and is linked to the main clause via [إلا أن 'illā 'anna /yet], offering a contrasting proposition.

Elaboration in the selected news articles was more frequent in Arabic (28.88%) than in English (18.48%), suggesting a tendency in Arabic news articles toward syntactic richness and layered explanations, which are frequently utilized through embedded structures. In Arabic news articles, elaboration was frequently realized through relative clauses and descriptive noun phrases; for instance;

قام المدرب توخيل، الذي سيغادر بايرن في نهاية الموسم، بإخراج كين قبل خمس دقائق من النهاية، قبل أن يقبل خوسيلو المباراة لصالح ريال مدريد .

Transliteration: qāma al-mudarrību Tūkheil, alladī sayughādiru Bāyran fī nihāyati al-mawṣim, bi-'ikhrāji Kīn qabla khamsi daqā'iq(a) mina an-nihāyah, qabla 'an yaqliba Khusīlu al-mubārāt(a) li-ṣāliḥ(i) Riyāl Madrid.

Translation: *Coach Tuchel, who will leave Bayern at the end of the season, substituted Kane five minutes before the end, before Joselu turned the match around in Real Madrid's favor.*

This hypotactic clause complex illustrates a blend of elaboration and temporal enhancement. The embedded relative clause [الذي سيغادر بايرن في نهاية الموسم /allaḍī sayughādiru Bāyran fī nihāyati al-mawṣim/who will leave Bayern at the end of the season] functions as an elaborative attribute. In contrast, the clause introduced by قبل [qabla /before] provides a temporal anchor for the event. In English news articles, elaboration often appears in attributive relative clauses, as in *Weapons-grade uranium, which is needed for a nuclear bomb, is 90% enriched or more.* The embedded clause, *which is needed for a nuclear bomb*, provides additional information about the main clause; *Weapons-grade uranium is 90% enriched or more*, serving as an elaborative attribute.

Locution (quoting or reporting speech) was more frequent in English (16.53%) than in Arabic (13.27%). Nonetheless, it was common across all sub-genres, particularly in political and economic news articles, reflecting journalists' tendency to incorporate external sources. For example, *'That doesn't mean he's not willing to absolutely step in,' he told Fox News.* This clause complex involves both the projection of an idea (he's not willing to absolutely step in) and the projection of a locution (*he told Fox News*). Similarly, economic journalism exhibits a high occurrence of projection. The majority of these instances fall under projection: **locution**, presenting statements from financial analysts or government officials, and so on. For example, *'So long as this war is going on... we're not expecting to see any significant improvement [in these markets],' the McDonald's boss added.* In contrast, sports journalism projection shows less reliance on projection compared to the political and economic journalism. Locution in sports news articles was through direct quotations from players and coaches. For instance, *Al-Ettifaq president Samer Al Misehal said: "Firstly, the club would like to thank Jordan for his efforts and wish him the best for his future endeavours."* The main clause (*Al-Ettifaq president Samer Al Misehal said*) functions as a verbal process presenting a projected locution which is linked to the other clause paratactically forming a relation of extension.

#### 4.3 Shifts in Taxis and Logico-Semantic Relations in English-Arabic News Articles

Having outlined the general tendencies of tactic and logico-semantic relations in English and Arabic news articles, it is evident that the two languages exhibit a preference for specific clause complexing strategies. Such preferences and structural divergences inevitably impact the translation process, resulting in a noticeable **shift** in the type or frequency of tactic relations and logico-semantic relations between the two languages. Typically, these changes impact the syntactic structure and coherence of the TT.

##### 4.3.1 Shift in Taxis

The analysis of the selected data reveals three patterns of taxis *shifts*: *no-shift* (preservation of taxis type in the TL), *shift* in tactic relation type, and *shift* in the number of taxis.

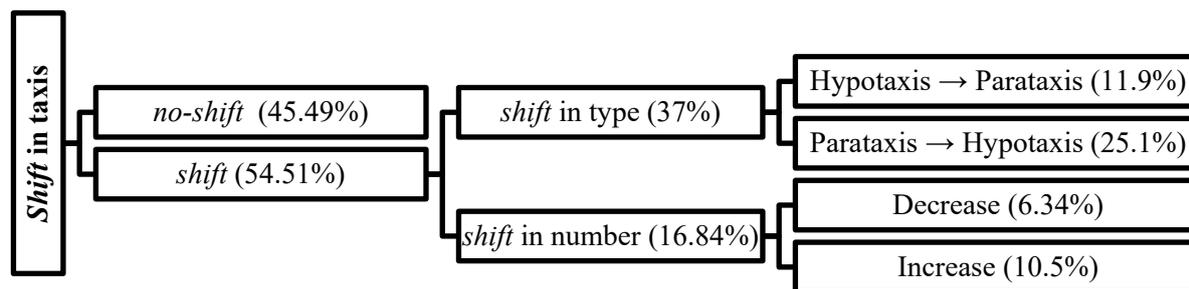


Figure 4. Shift in taxis in news articles

In cases of *no shift*, the same SL tactic relation is retained in the TL, reflecting a tendency of translators to use literal translation strategies to preserve the logical structure and coherence of the ST. In example (1), the ST’s tactic relation is preserved in the TT through the use of the coordinating conjunction ‘but’ in English and ‘لكن’ [*lakin*] in Arabic.

**Example (1):**

ST *Some of the books had fallen off the library shelves, **but** the building was intact.*  
 بعض الكتب سقطت من رفوف المكتبة، لكن المبنى كان سليماً.  
 TT Transliteration: *ba ‘du al-kutub saqaṭat min ruṣūfi al-maktabah, **lakinna** al-mabnā kāna salīman.*  
 Translation: Some books fell from the library shelves, but the building was intact.

In other cases, the SL tactic relation is preserved in the TL, with a change in the explicitness of its realization. Such changes do not affect the underlying interdependency between clauses; however, they might influence the text’s cohesion or the overall stylistic tone. In some cases, the SL’s conjunctions are omitted or replaced with punctuation marks in the TL, while maintaining the same coordinating relation.

**Example (2):**

ST *Defence Minister Yadav Gallant said Israel had supported Turkey in last year’s earthquakes, **and** accused Turkey of serving as a "de facto executive arm" of Hamas.*  
 وقال وزير الدفاع يوآف غالانت إن إسرائيل دعمت تركيا في زلزال العام الماضي متهما تركيا "بالنفاق".  
 TT Transliteration: *wa-qāla wazīru ad-difā ‘i Yoav Gallant ‘inna Isrā’īla da‘amat Turkīyā fī zilzālī al-‘āmi al-mādī, muttahiman Turkīyā “bi-n-nifāq”.*  
 Translation: *Israeli Defense Minister Yoav Gallant said that Israel had supported Turkey during last year’s earthquake, accusing Turkey of “hypocrisy.”*

In the Arabic version, the coordinating conjunction *and*, and the punctuation mark, the comma, are omitted, while the paratactic structure is maintained and expressed implicitly without an explicit connector.

**Example (3):**

ST *Although almost everyone in the world now breathes air that is polluted in some way, the unfolding story of air pollution is one of environmental inequality.*  
 على الرغم من أن كل شخص في العالم تقريباً يتنفس الآن هواء ملوثاً بطريقة ما، إلا أن قصة تلوث الهواء هي إحدى قصص عدم المساواة البيئية.  
 TT Transliteration: *‘alā ar-raġmi min ‘anna kulla shakḥsin fī al-‘ālam(i) taqrīban yatanffasu al-‘āna hawā ‘an mulawwāṭan bi-ṭarīqatin mā, ‘illā ‘anna qisṣata talawwuthi al-hawā ‘i hiya ihdā qisṣi ‘adami al-musāwāti al-bī‘yyah.*  
 Translation: *Although almost everyone in the world is now breathing polluted air in one way or another, the story of air pollution remains one of the stories of environmental inequality.*

This example illustrates a case of *no-shift* in hypotaxis, where the concessive relation is maintained using *على الرغم من أن* [*alā ar-raġmi min ‘anna/Although*], however, the TL further strengthens this relation through double-marking by using *إلا أن* at the beginning of the main clause. This double-marking strategy is common in formal Arabic discourse and is usually used to enhance syntactic clarity. Such choices reflect the translator’s adaptation of Arabic rhetorical norms, favoring explicitness, particularly in journalistic writing.

*Shift* in taxis type means that a paratactic relation in the SL is translated into a hypotactic relation in the TL or vice versa. This type of *shift* often enhances textual cohesion and clarifies the implicit logical relation, aligning with Arabic rhetorical preferences.

Table 3. Shift in Taxis types from English into Arabic

Taxis	Percentage	Dominant sub-genre
Parataxis → Hypotaxis	25.1%	Politics
Hypotaxis → Parataxis	11.9%	Sports

**Example (4):**

- ST *Thousands have been wounded, and the homes of tens of thousands of others have been destroyed.*  
 أكثر من مليون شخص اضطروا للفرار بسبب العمليات العسكرية الإسرائيلية، بينما جرح الآلاف، ودمرت عشرات الآلاف من المنازل.
- TT Transliteration: 'aktharu min milyūni shakhšin idṭarrū li-l-firāri bisababi al-'amaliyyāti al-'askariyyati al-'isrā'īliyyah, baynamā juriḥa al-'ālāfi, wa-dummirat 'asharātu al-'ālāfi mina al-manāzili.  
 Translation: *More than one million people were forced to flee because of the Israeli military operations, while thousands were injured and tens of thousands of homes were destroyed.*

In this example, the English paratactic clause complex, coordinated with *and* (representing an additive relationship), is rendered into Arabic as a hypotactic causal relationship using the subordinating conjunction *بينما* [*baynamā/while*]. Here, the TT restructures the information and introduces additional contextual information that is not mentioned in the ST. This marks a clear *shift* in the type of taxis, from parataxis to hypotaxis. This structural *shift* from English into Arabic reinforces the logical and temporal connection between the two events, aligning the TT with Arabic rhetorical preferences. Conversely, *shifts* from hypotaxis to parataxis were also found, often in sports news articles.

**Example (5):**

- ST *Her voice trails off as her big goals fill this modest little room.*  
 ثم ينخفض صوتها تدريجياً وكان أحلامها الكبيرة تملأ الغرفة الصغيرة المتواضعة.
- TT Transliteration: *thumma yankhaṣṣu ṣawtuḥā tadrijīyyan wa ka-'anna ahlām(a)hā al-kabūrata tamlā'u al-ghurfata aṣ-ṣaghūrata al-mutawaḍi'ah.*  
 Translation: *Then her voice gradually fades, as if her great dreams are filling the small, modest room.*

In the ST, the subordinate conjunction *as* introduces a dependent clause, creating a syntactic hierarchy between the two clauses in which the description of her voice trailing off is subordinated to the clause about her dream. However, in the TT, the structure is modified into a sequence of connected clauses by *ثم* [*thumma/then*] and *كان* [*ka-'anna/as if*], resulting in two syntactically independent clauses. Although *كان* [*ka-'anna/as if*] introduces a comparative meaning, it does not establish a syntactically dependent relationship. Thus, the result is a paratactic clause complex that maintains the original meaning of the SL but restructures the logical relation to align with the TL rhetorical norms.

Another significant type of *shift* observed in the analysis is changes in the number of clause complexes between ST and TT. These *shifts* occur when a translator expands the original clause complex into multiple relations, introducing additional tactic relations to clarify an intended meaning, or vice versa. In some cases, a simplex clause is translated into a complex clause, leading to an increase in the number of tactic relations in the TL. On the other hand, some complex clauses are translated into a simplex clause in the TL. This type of *shift* goes beyond the changes in taxis types, it reflects a broader restructuring of the clause complex in terms of its segmentation. When a single English clause complex, containing one tactic relation, is expanded in Arabic into multiple independent or dependent clauses, the overall tactic relations are increased. This practice is often derived from the translator's intention to improve clarity and align with Arabic rhetorical conventions.

**Example (6):**

- ST *"We witnessed the changes in Dongguan and have strong feelings for this land. This is our second home."*  
 "عاصرنا التغييرات التي شهدتها دونغوان ولدينا مشاعر قوية تجاه هذه الأرض، إنها بيتنا الثاني."
- TT Transliteration: 'āṣarnā at-taghyīrāt allāi shahidathā Dōnggwān wa ladaynā mashā'ir qawīyyah tijāha hādhihi al-arḍ, innahā baytunā ath-thānī.  
 Translation: "We have witnessed the changes that Dongguan has undergone, and we have strong feelings toward this land; it is our second home."

In the SL, the quotation presents three clauses: two paratactically related clauses linked by the coordinating conjunction *and* (additive relationship), which form a single tactic relation, and one stand-alone simplex clause. While in the TT, it was translated into four linked clauses: the first clause is restructured by embedding a dependent relative clause using *التي* [*allatī/that*], creating an explicit hypotactic relationship, and the additive relation between the two main clauses is maintained through the use of *و* [*wa/and*], resulting in a more complex clause complex with multiple tactic relations, and the final independent clause *إنها بيتنا الثاني* [*innahā baytunā ath-thānī/it is our second home*] was integrated into the same sentence through parataxis.

On the other hand, in some instances, translators opt to reduce the number of tactic relations, aiming for syntactic simplicity and to avoid ambiguity in the TL.

**Example (7):**

- ST *We did not want a forever president who builds monuments to himself.*  
 لم نكن نريد رئيساً أبدياً يبني لنفسه النصب التذكارية.
- TT Transliteration: lam nakun nurīdu ra'īsan abadīyan yabnī li-naṣsiḥi an-nuṣba at-tadhkārīyyah.  
 Translation: *We did not want an eternal president who builds monuments for himself.*

In the ST, the additional descriptive clause about the president (*who builds monuments to himself*) is connected to the

main clause via a relative clause marker *who*, creating a paratactic relation. In contrast, in the TT, the structure is simplified by embedding the descriptive detail about the president directly within the noun phrase رئيساً أبدياً يبني لنفسه [ra'īsan abadīyan yabnī li-naḥsihī an-nuṣuba at-tadhkārīyyah/an eternal president who builds monuments for himself], making the entire construction functionally a simplex clause.

#### 4.3.2 Shifts in Logico-semantic Relations

The analysis of the selected data revealed instances of *shifts* in logico-semantic relations in English-Arabic news articles. Overall, the findings showed that 59.13% of the SL logico-semantic relations remained unchanged in the TL, while 40.87% were changed (18.78% were *shifts* in the number, and 22.09% were *shifts* in the type of logico-semantic relations). *No-shift* in logico-semantic relation in English-Arabic news articles was 59.13%, demonstrating a high degree of structural equivalence between the SL and TL, while maintaining the same logico-semantic relation. These literal or near-literal translations reflect either a structural equivalence between English and Arabic or a deliberate choice made by the translator to preserve the rhetorical effect of the ST.

#### Example (8):

ST *There have been reports of a few reprisal killings in parts of the country, **but** so far, there is no evidence to suggest they were carried out by HTS.*

وأوردت تقارير عن وقوع عمليات قتل انتقامية في بعض أنحاء البلاد، **لكن** حتى الآن لا يوجد دليل يثبت أنها تمت على يد هيئة تحرير الشام.

Transliteration: wa-awradat taqārīru 'an wuqū'ī 'amaliyāti qatlin intiqāmīyyah fī ba'di 'anḥā'i al-balād, lakin ḥattā al-'āna lā yūjadu dalīlun yuḥbitu 'annahā tammat 'alā yadi Hay'ati Tahrīri ash-Shām.

TT *Reports have cited incidents of retaliatory killings in some parts of the country, but so far there is no evidence proving that they were carried out by Hay'at Tahrir al-Sham.*

This example demonstrates a *no-shift* in logico-semantic relations, specifically in the use of the Extension (contrastive addition) relation. In the ST, the two clauses are linked by the contrastive coordinator *but*, introducing a contrastive relationship between the reported incidents and the lack of evidence. The TT faithfully preserves the same semantic relationship, Extension (contrastive addition), and syntactic coordination using *لكن* [*lakin* /*but*]. The translator retains the same contrastive function without modification, thereby providing a literal and accurate translation.

*Shifts* in the type of logico-semantic relations arise when the translator changes the original logico-semantic relation used in the SL and replaces it with a different type of relation that would better align with the TL's stylistic preferences. Such a *shift* extends beyond clause structure adjustments as it reshapes how ideas and events are logically connected and interpreted by the reader. These *shifts* can influence meaning subtly or fundamentally, depending on how the relationship between clauses is restructured, reflecting linguistic constraints, cultural norms, or strategic choices in translation. Translators may loosen or tighten the clauses' connections, reflecting a tendency to either simplify the clauses' relations for clarity or to add additional specification and details. Some of the common types of *shift* in logico-semantic relations are a *shift* from enhancement to elaboration, where relations expressing time or cause in the ST are interpreted as elaboration in the TT, providing clarification or definition. Likewise, a *shift* from enhancement into extension was also evident in the analysis of the selected data. Another type of *shift* observed in the analysis is a change from Elaboration to Extension, which reflects loosening the connection between clauses in the TT. It occurs when the translator replaces an explanatory relationship with a general additive relationship in the TL by transforming a relative clause into an independent coordinated clause.

#### Example (9):

ST *This aching hurt and exhilarating happiness is palpable, especially for Syrians now able to make a bittersweet return to Homs.*

هذه الآلام العميقة والسعادة المبهجة محسوسة بشكل قوي، خصوصاً بالنسبة للسوريين الذين يستطيعون الآن العودة إلى حمص، رغم أن بعض الأحياء لا تزال مشاهد مدمرة من الأتقاض والخراب.

TT *These profound pains and joyful happiness are strongly felt, especially for the Syrians who can now return to Homs, even though some neighborhoods still remain scenes of rubble and destruction.*

Transliteration: hādhihi al-'alām al-'amīqah wa as-sa'adah al-mubhijah maḥsūṣah bi-shakl qawī, khuṣūṣan bil-nisbah lil-sūriyyīn alladhīna yastaṭī'ūna al-'āna al-'awdah ilā Ḥimṣ, raghma 'anna ba'da al-aḥyā' lā tazālu mashāhid mudammarah mina al-anqāḍ wa al-kharāb.

In the SL, the subject (*This aching hurt and exhilarating happiness*) reflects an Extension (addition) relation at the nominal level, with the two emotional states connected via *and*. The circumstantial phrase (*especially for Syrians...Homs*) contains a reduced relation clause (*now able to make...*), introducing Elaboration (identification) by specifying the referent Syrians. Together, these structures render the sentence a clause complex, with multiple embedded layers of logico-semantic relations. This overall structure is preserved in the TT, where a clause complex consists of a main clause and a dependent clause *الذين يستطيعون الآن العودة إلى حمص* [*allaḍīna yastaṭī'ūna al-'āna al-'awdah ilā Ḥimṣ/who can now return to Homs*] specifying *السوريين* [*as-suriyyīn/Syrians*], thus preserving the Elaboration (identification) relation found in the ST. However,

at the nominal level, there is a shift in the logico-semantic relations. Rather than relying on simple coordination to express the coexistence of emotions, elaborative descriptive adjectives *السعادة العميقة* [*al-'ālām(u) al-'amīqah /profound pains*], *السعادة المبهجة* [*as-sa'ādah al-mubhijah/joyful happiness*] are employed, replacing Extension (addition) with Elaboration (identification). This shift enhances the semantic precision and emotional clarity in the TT.

*Shifts* in the number of logico-semantic relations occur when the number of logico-semantic relations in the SL is either increased or decreased in the TL. This type of *shift* often results from the structural and pragmatic adjustments made by translators to align with the norms of the TL.

#### Example (10):

ST *After Sunday's incident, Turkey's Justice Minister Yılmaz Tunc said an investigation had been launched into the player's "ugly action supporting Israel's massacre in Gaza".*

وقال وزير العدل التركي يılmaz تونج إن تحقيقاً بدأ بسبب "العمل القبيح الذي قام به اللاعب لدعم مذبحه إسرائيل في غزة".

TT Transliteration: *wa-qāla wazīru al-'adli at-turkī Yılmaz Tuñç inna taḥqīqan bada`a bisababi "al-'amali al-qabīhi alladī qāma bihi al-lā`ibu li-da`mi maḡbaḥati Isrā`īla fī Ġazza".*

Translation: Turkish Justice Minister Yılmaz Tuñç said that an investigation had been launched because of "the disgraceful act committed by the player in support of Israel's massacre in Gaza."

This example illustrates a *shift* in both the number and type of logico-semantic relations. In the English ST, the clause complex consists of a temporal circumstantial phrase (*After Sunday's incident*), followed by a projecting clause (*Turkey's Justice Minister Yılmaz Tunc said*), and a projecting content that includes an identification relation expressed by the non-finite clause (*Israel's massacre in Gaza*), specifying the nature of the "ugly action". The temporal circumstantial phrase introduces an Enhancement (time) relation, and the embedded non-finite clause presents an Elaboration (identification) relation. In contrast, the Arabic TT simplifies the structure: the Enhancement (time) relation expressed in the ST is omitted, leading to a decrease in the number of logico-semantic relations, and the Elaboration relation presented in the ST is changed into an Enhancement (cause) relation in the TT. In the TT, a circumstantial marker *بسبب* [*bisabab/because*] is used to reframe the "ugly action" not as an identifying attribute but as an explicit causal reason for the investigation (shift from Elaboration to Enhancement).

## 5. Conclusion

This study applied an SFL-based approach to analyze taxis and logico-semantic relations in a bilingual corpus of English-Arabic news articles. By combining Python-based automation, manual linguistic verification, and quantitative and qualitative analysis, this study offered a comprehensive analysis of how clause complexing systems are deployed in both languages and how they might shift during the translation process. The analysis showed that parataxis was prevalent in English news articles (54.7%), reflecting a journalistic tendency towards clarity and coordination. On the other hand, hypotaxis was prevalent in Arabic news articles (59.1%), suggesting a stylistic tendency towards syntactic depth and subordination. Regarding logico-semantic relations, both languages exhibited a predominant use of expansion, with enhancement being the most frequent subtype employed (31.6% in English and 31.4% in Arabic). Moreover, projection, specifically locution, occurred more frequently in English texts (16.5%) than in Arabic (13.3%), representing the SL's higher reliance on reported and quoted speech in journalistic discourse.

Additionally, the study examined shifts in taxis and logico-semantic relations in English-Arabic translation. While shifts in taxis were observed in 54.5% of the data, this figure encompasses both shifts in type (37%, e.g., parataxis to hypotaxis or vice versa) and shifts in number (16.84%, e.g., adding or omitting clause complexes in translation). Notably, 45.5% of the texts maintained the same SL taxis structure, indicating a substantial degree of structural fidelity to the SL. In terms of logico-semantic relations, the overall shift rate was 40.9%, where only 22.1% were shifts in the type of logico-semantic relations, and the rest were shifts in the number of logico-semantic relations. Significantly, 59.1% of the logico-semantic relations were preserved, reflecting a semantic consistency between the STs and TTs. Overall, the analysis showed that the majority of clause complexes were translated without shifts, suggesting that translators remained faithful to the ST's structure and meaning. On the other hand, the presence of shifts in some cases highlights the adaptive strategies adopted by translators to accommodate linguistic and stylistic differences between English and Arabic. By highlighting these translation shifts, this study broadens the scope of SFL in the analysis of bilingual journalistic discourse. It deepens our understanding of how meaning is reconfigured and reshaped across languages. The findings show that while some relational patterns are genre-driven, others are shaped by the distinctive structural and rhetorical tendencies of each language. Ultimately, this study underscores the importance of integrating computational tools with linguistic theory to identify subtle translation patterns that might otherwise go unnoticed. Future research could extend this approach by incorporating translator-specific variables, examining diverse sets of genres, and exploring the role of implicit relations and discourse markers in structuring inter-clausal logic in translation.

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