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ARTICLE

A Corpus-Based Analysis: Kazakh-Russian Grammatical Transformations in Akhmet Baitursynuly's Translations

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ABSTRACT

This paper examines grammatical transformations (translation techniques), in rendering the works of Akhmet Baitursynuly into Russian, using a corpus-based approach. The primary analysis is based on the Kazakh-Russian parallel corpus of Baitursynuly's texts, created by the authors. This corpus serves as a foundational tool for identifying linguistic patterns, translation techniques, and stylistic nuances across the languages. The study focuses on selected texts by Baitursynuly in both Kazakh and Russian. Focusing on selected original texts and their translations, the identified key grammatical transformations include syntactic assimilation, sentence splitting and merging, and grammatical substitutions. These transformations are analyzed to uncover their role in adapting linguistic structures and preserving the stylistic essence of the source material. The study highlights the utility of parallel corpora in translation studies, demonstrating their effectiveness in analyzing linguistic and stylistic nuances. A frequency analysis of specific translation challenges, such

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as the causative conjunctions *sebebi* and *üjtkeni* (both meaning *because*) in Kazakh, reveals variations in their Russian equivalents influenced by linguistic constraints and Baitursynuly's stylistic preferences. Corpus-based research methods enable sampling, comparative and contrastive text analysis, and detailed examination of grammatical transformations. The parallel corpus facilitates the alignment of source and target texts, offering quantitative and qualitative insights into the translation process. This approach also provides an empirical framework for examining recurring translation patterns and assessing the influence of language typology on grammatical adaptation. The study utilized exhaustive sampling of linguistic material from original texts and translations, comparative and contrastive text analysis, analysis of grammatical transformations, and text alignment.

Keywords: Corpus Linguistics; Parallel Corpus; Corpus Analysis; Translation Analysis; Bilingual Translation; Grammatical Transformations; A. Baitursynuly

1. Introduction

The rapid development of modern software systems utilizing electronic linguistic databases for text processing and analysis across diverse genres and languages has sparked a growing interest among linguists in corpus-based research. In particular, the creation of parallel corpora, including multilingual corpora, has gained significant attention. A parallel corpus is an electronic repository of translated texts aligned with their originals, often comprising multiple "source text and one or more translations" pairs [1].

Currently, bilingual corpora have been established for several languages, including English, Finnish, French, German, and Greek, among others. These bilingual corpora, commonly referred to as bitexts, play a crucial role in various domains of research, such as translation studies, comparative linguistics, cultural studies, automated text processing, language education, and textual analysis. Parallel corpora serve as an invaluable linguistic tool for identifying translation strategies and equivalents employed by translators. Unlike traditional methods of analyzing translated texts, parallel corpora streamline the identification of equivalent terms, particularly in addressing translation challenges involving non-equivalent or culturally specific vocabulary, specialized terminology, idiomatic expressions, proper nouns, and other complex linguistic phenomena.

This study aims to investigate grammatical translation transformations from Kazakh to Russian, utilizing the Kazakh-Russian parallel corpus of Akhmet Baitursynuly. Additionally, it explores the distinctive features of Baitursynuly's individual authorial style as reflected in the translations.

2. Literature Review

In the context of the modern digital age, the significance of corpus linguistics resources in addressing complex research challenges is undeniable. Parallel corpora, in particular, provide a robust framework for the in-depth examination of translation transformations, techniques, and strategies. This analytical approach facilitates the production of precise, accurate, and authentic translations, thereby enhancing the methodological repertoire available to translators.

A parallel corpus serves as an indispensable resource for identifying linguistic equivalents and establishing the foundational principles and methodologies of translation. It enables translators to systematically identify specific translation techniques, evaluate their effectiveness, compare the vocabulary and grammatical structures of translated texts with their originals, analyze various translation strategies, and determine stylistic correspondences based on contextual patterns. These capabilities allow for a nuanced exploration of how stylistic features are rendered in translation [2].

In Kazakhstan, the field of corpus linguistics is witnessing increasing interest in the creation and application of parallel corpora. Notably, as part of the National Corpus of the Kazakh Language (hereinafter – NCKL) initiative, efforts are being made to develop parallel Kazakh-Russian subcorpora. The NCKL encompasses a substantial collection of texts by Kazakh authors, forming an electronic database of literary works spanning various genres. This authorial corpus includes the works of over one hundred prominent Kazakh writers, such as S. Seifullin, Zh. Aimautov, M. Dulatov, M. Auezov, S. Mukanov, A. Nurpeisov, A. Nurshaikhov, I. Yesenberlin, and others.

Additionally, a Kazakh-Russian parallel corpus has been developed using materials from four multilingual news websites in Kazakhstan [3]. At the same time, Al-Farabi Kazakh National University is actively working on the development of an English-Kazakh parallel corpus comprising one million words of legal texts. This project aims to establish an English-Kazakh legal text database and to support the creation of a statistical machine translation system [4].

The authors of this paper are at the forefront of creating a concordance and a Kazakh-Russian parallel corpus of A. Baitursynuly's works. This corpus serves as a digital repository of the Kazakh scholar's writings and their translations, featuring an alphabetical index of his works and a compilation of words along with their contextual usage [5–8].

The development of the Kazakh-Russian parallel corpus of A. Baitursynuly's works went through several key stages, from data collection to alignment and final processing. The corpus is based on the literary and scientific works of A. Baitursynuly. It includes both the original Kazakh texts and their Russian translations, aligned at the sentence level. The sources of Kazakh and Russian texts were digitized from selected academic editions and aligned using a combination of automatic tools and manual work to ensure high data quality. The texts were preprocessed to remove non-linguistic elements, such as footnotes and references, to maintain the integrity of the parallel content [9].

Alignment is a key element in creating a parallel corpus, as it determines how sentences or phrases from two languages correspond to each other. For this corpus, alignment was performed using both automatic tools and manual verification to ensure high accuracy. In the first stage, the texts were segmented into individual sentences in Kazakh and Russian. Sentence segmentation tools were used for this purpose, capable of processing specific sentence boundaries for both languages, including language-specific punctuation and sentence structure features.

The parallel corpus of A. Baitursynuly was developed using the C# programming language, with the framework based on NET 6 MVC. NET 6 operates stably on Linux platforms, and the MVC model enhances code modularity and accessibility. The operating system is based on Linux CentOS 8, and Nginx was used for static resource distribution and load balancing. MySQL was used as the database system, known for its ability to efficiently process large volumes of data. The UTF-8MB4 character set standard was applied, ensuring the ability to store multilingual texts and complex symbols. A table partitioning method was employed for managing large volumes of data. During the development of the Kazakh-Russian parallel corpus, Visual Studio Code was used as the programming environment. Versions were managed through Git, the code was stored in a GitHub repository, and team collaboration was organized. Git branching strategies ensured a continuous process of merging and publishing.

The corpus interface was built using Bootstrap, enabling user-friendly interfaces for various devices. Website loading speed was improved through caching and compression of static files. A lazy loading technique was implemented, helping to efficiently load large datasets.

For alignment and processing purposes, texts were matched using algorithms such as cosine similarity and Levenshtein distance. Threshold values could be customized according to different accuracy levels. An interactive interface was developed, allowing users to adjust the results of identification. Uploaded texts are automatically verified, and formatting and data duplication are removed.

Modern research in the field of parallel corpora is becoming increasingly relevant in various areas, particularly translation theory and practice, contrastive linguistics, and language education. For instance, Tawfeek Mohammed explores the use of parallel corpora in the context of Arabic-to-English translation. The author notes that parallel corpora help translators identify equivalent terms and expressions with a high degree of accuracy, study discourse structures and markers in two or more languages, train translators, and identify translation errors and challenges [10]. Additionally, parallel corpora can serve as a resource for identifying translation variability in natural languages and evaluating machine translation systems for different target languages [11].

A parallel corpus serves as a valuable tool for examining and comparing the source and translated contexts, as well as for identifying translation transformations that enhance translation quality. Despite the typological and structural differences between related and unrelated languages, various interlingual grammatical and lexical adjustments enable translators to preserve the expressive and stylistic nuances of the original text. According to L.S. Barkhudarov, the most frequent translation transformation is substitution, which is

further divided into grammatical and lexical types [12].

Internationally recognized linguistic research have extensively addressed translation challenges, including the classification and application of translation transformations. Scholars such as J.P. Vinay & J.L. Darbelnet [13], L.S. Barkhudarov [14], R.K. Minyar-Beloruchev [15], V.G. Gak [16], J. L. Venuti [17], G. Toury [18], S. Simon [19], B. Hatim [20], G. Kress [21], S. Bassnett [22], V.N. Komissarov [23] have made significant contributions in this area.

Kazakhstani researchers as A. Aldasheva [24], Zh. Zhakupov [25], O. Aitbayuly [26], A.K. Zhubanov [27] have also explored these topics and played a pivotal role in advancing this field.

V.N. Komissarov [23] classifies translation transformations into three types: lexical, grammatical, and complex (lexical-semantic). Grammatical transformations involve modifying the grammatical forms and structures of the source language to correspond with the non-equivalent forms and structures of the target language, while maintaining semantic consistency. It is crucial to acknowledge that the original and translated languages belong to different structural types, requiring careful consideration of differences in collocation, word order, and sentence structure.

3. Methodology

This section outlines the methodology employed in the research on Kazakh-Russian parallel corpus and translation analysis. The methodology encompasses data collection via ad-hoc search and analysis procedures to achieve the research objectives.

A product-oriented qualitative research [28] design is employed to ensure a comprehensive and nuanced exploration of the role of digital tools in writing and translation. The combination of critical discourse analysis [29] and descriptive/explanatory approaches [18, 30] of the qualitative data allows for a more holistic understanding of the impact of these tools on language processing and communication.

Corpus-based research methods involve the use of large, structured collections of texts (corpora) to analyze translation products. Corpora are valuable resources that allow researchers to study translation patterns, linguistic variations, and the impact of context on translation choices. In translation studies, corpora are used to investigate various aspects of translation, including terminology choices, syntactic structures, and discourse features. Researchers can compare translations to source texts, conduct contrastive analysis between different translations of the same text, and explore how translators handle specific language pairs or genres. Corpora-based research has become increasingly significant as it provides empirical evidence for translation analysis [31]. The research adopts a qualitative, product-based, and descriptive approach to examine Kazakh-Russian grammatical transformations.

The study utilized a corpus-based approach to analyze translation transformations between Kazakh and Russian, focusing on a bilingual corpus of selected works by Akhmet Baitursynuly [32, 33]. This corpus includes educational, methodological, scientific, and journalistic texts spanning various years, reflecting Baitursynuly's multifaceted contributions to Kazakh culture and intellectual thought. The texts analyzed include key works such as *Oqy Qyraly*, *Til Qyral*, *Til Zhūmsar*, *Bayanshy*, *Älippe*, *Älippe Astray*, *Sauat Ashkysh*, *Ädebiet Tanytkysh*, *Masa*, and *Qyryq Mysal*, among others, in both the original Kazakh and their Russian translations.

Programming language and framework utilized within the research; programming language C# was used, offering high performance and strong typing advantages. Framework was developed based on NET 6 MVC. NET 6 works stably on Linux platforms, while the MVC model enhances the modularity and accessibility of the code. MySQL database system was applied for its ability to process large amounts of data quickly. UTF-8MB4 standard ensures the ability to store multilingual texts and complex symbols.

The bilingual corpus served as the primary resource for identifying and categorizing grammatical transformations. The research involved the following methods and techniques:

Sampling: Linguistic material was systematically extracted from original texts and their translations to ensure a comprehensive representation of Baitursynuly's corpus.

Comparative Analysis: Original texts and their corresponding translations were compared to identify similarities, differences, and translation strategies.

Analysis of Grammatical Transformations: Specific types of grammatical changes, such as syntactic assimilation, sentence splitting and merging, and grammatical substitutions, were systematically examined.

Text Alignment Methods: Source texts and translations were aligned at the sentence and phrase levels to facilitate a detailed analysis of translation equivalents and patterns.

This methodology enabled the identification of translation strategies and equivalences while providing insights into the linguistic and stylistic nuances of Baitursynuly's works in both languages. The application of these methods underscores the effectiveness of parallel corpora in studying complex translation phenomena.

Data Collection. The corpus is based on the literary and scientific works of A. Baitursynuly. It includes both the original Kazakh texts and their Russian translations, aligned at the sentence level. The selection of texts covers various genres, including journalistic articles, textbooks, scientific works, and literary pieces, which ensures a broad representation of lexical-semantic and stylistic diversity within the corpus.

The sources of the Kazakh and Russian texts were digitized from selected academic editions and aligned using a combination of automatic tools and manual work to ensure high data quality. The texts were preprocessed to remove non-linguistic elements (such as footnotes and references) to maintain the integrity of the parallel content.

Alignment is a key element in creating a parallel corpus, as it determines how sentences or phrases from the two languages correspond to each other. For this corpus, alignment was performed using both automatic tools and manual verification to ensure high accuracy.

In the first stage, the texts were segmented into individual sentences in both Kazakh and Russian. Sentence segmentation tools were used for this purpose, capable of processing specific sentence boundaries for both languages, including language-specific punctuation and sentence structure features.

For the purpose of this study, the data for this study was sourced from the Kazakh-Russian parallel corpus of A. Baitursynuly, which includes a range of texts authored by the Kazakh reformer, educator, and scholar. This corpus, developed specifically for this research, comprises educational, methodological, scientific, and journalistic works in both Kazakh and Russian languages. The selection of texts for inclusion in the corpus was guided by the following criteria: (a) Works that represent Baitursynuly's significant contributions to Kazakh intellectual, cultural, and linguistic heritage. (b) capture the range of translation transformations, texts spanning multiple genres such as instructional manuals, such as *Oqy Qyraly*, *Til Qyral*, *Ädebiet Tanytkysh*, and literary works as *Masa*, *Qyryq Mysal*, and other notable writings were included. (c) Only works with corresponding Russian translations were considered to ensure parallel alignment for analysis.

The corpus was developed through a multi-stage process:

(a) Digitization: Original Kazakh texts and their Russian translations were digitized using OCR software, followed by manual verification to ensure accuracy.
(b) Preprocessing: Texts were cleaned by removing non-linguistic elements (e.g., footnotes, extraneous formatting), standardizing orthography, and ensuring consistency across datasets.
(c) Alignment: The Kazakh texts and their Russian translations were aligned at the sentence level using a combination of automated tools (e.g., Levenshtein distance, cosine similarity) and manual corrections to refine sentence mapping.

The finalized parallel corpus included over 100,000 tokens across Kazakh and Russian texts, ensuring a robust dataset for analysis. The corpus structure allowed for precise examination of translation equivalents, grammatical transformations, and stylistic nuances. To facilitate analysis, the following tools were employed: Language-Specific Tokenizers to Customize tokenization scripts were developed to handle unique grammatical structures in Kazakh and Russian; Alignment Software for the texts to be aligned using software capable of supporting linguistic features specific to Turkic and Slavic languages; and Concordance and Frequency Analysis to extract instances of key lexical and grammatical structures, enabling detailed frequency analysis.

This comprehensive data collection and preprocessing methodology ensured the reliability and depth of the findings presented in this study.

Ethical Considerations. This research adheres to ethical standards, ensuring the public materials indicating their sources. This study adhered to ethical research practices throughout the development and analysis of the Kazakh-Russian parallel corpus of A. Baitursynuly. The original Kazakh texts and their Russian translations used in this research are public domain works or were obtained with proper

permissions from relevant publishers. Proper attribution has been provided for all sources referenced in the study. All stages of corpus creation, including data digitization, preprocessing, and alignment, were conducted with a commitment to accuracy. Manual verification complemented automated processes to ensure data integrity, minimizing errors and misrepresentation. The research recognizes the cultural and historical significance of A. Baitursynuly's works. Efforts were made to preserve the original context, meaning, and stylistic nuances of his writings during analysis and translation to respect his intellectual legacy. As the research involves publicly available texts, issues of confidentiality and privacy do not apply. However, any derived data or analytical tools developed for this study have been anonymized to prevent misuse. The findings presented in this article are based on rigorous, unbiased analysis. No modifications were made to the original texts or translations to influence results. Any limitations or challenges encountered during the research process are openly acknowledged in the discussion. The parallel corpus created for this study is intended for academic and educational purposes. Subject to institutional guidelines, the corpus may be made available for further research, fostering collaborative development within the linguistic and translation studies community. Overall, these ethical considerations ensured that the research was conducted responsibly, respecting both the source material and the broader academic community.

Limitations. Despite the thorough approach to data collection and analysis, this study acknowledges several limitations that may impact the scope and generalizability of its findings:

(a) The Kazakh-Russian parallel corpus of A. Baitursynuly, while comprehensive, is limited to the selected works of the author. This may not fully capture the breadth of grammatical and lexical transformations present in other genres or authors' works within Kazakh-Russian translations.
(b) Differences in the structural, grammatical, and syntactic properties of Kazakh and Russian posed challenges in aligning sentences and analyzing translation equivalents. While manual verification was employed, some nuances of linguistic transformation may have been overlooked or misinterpreted.

Addressing these limitations in future research could involve expanding the corpus to include works by multiple authors, employing more advanced computational tools for linguistic analysis, and incorporating contemporary translations to provide a broader perspective on translation practices.

4. Results and Discussion

The authors of this article are not only responsible for developing the Kazakh-Russian parallel corpus of A. Baitursynuly but also for translating his works from Kazakh into Russian. The translation process presents challenges due to the typological differences between the structurally distinct languages. These challenges often involve the grammatical systems of the languages, requiring the use of morphological and syntactic transformations during translation.

The primary types of grammatical transformations include syntactic assimilation (literal translation), sentence splitting, sentence integration, and grammatical substitutions.

Syntactic assimilation is a translation method where the syntactic structure of the original text is transformed into a similar structure in the target language. This method reflects the resemblance between the syntactic structures of the original and translated languages, allowing for what is often referred to as a "literal translation". Although Kazakh and Russian are unrelated languages, instances of almost literal translation can still be found:

Mini, osy sijaqty neshe? qansha? dep sūrauğa zhauap bolatyn häm närseniŋ sanyn körsetetin sözderdi san-esim dejmiz. – Itak, slova, kotorye otvechajut na voprosy neshe? (skol'ko?) qansha? (kakoe kolichestvo?) i oboznachajut kolichestvo predmetov, nazyvaem imenem chislitel'nym. [So, the words that answer the questions "neshe?" (how many?) and "qansha?" (what quantity?) and denote the number of items are called numerals].

Zhaza biletinder oqyj da biledi. – Umejushhie pisat', umejut i chitat' [Those who can write, can also read].

The source language is transformed into two or more predicative structures in the target language. This transformation results either in converting a simple sentence in the source language into a complex sentence in the target language or in breaking a simple or complex sentence from the source language into two or more independent sentences in

the target language [34].

In the provided examples, the profound scientific ideas of A. Baitursynuly, expressed in a single complex sentence with various types of subordinate clauses, are translated into two separate sentences. The final position of the key verb in Kazakh, which unites the subordinate clauses into one sentence, is particularly challenging to convey using grammatical means in Russian.

For example, a conditional clause in a complex sentence has been rendered in the translation as a separate sentence. This is because the original sentence contains two causal clauses combined by the verb *qoldanbajmyz (we do not use).* Due to typological features of the Russian language, the verb *ne primenjaem (we do not use)* is placed at the beginning of the sentence, making it difficult to understand the meaning of the entire complex sentence with multiple subordinate clauses. To avoid the cluttering of causal and conditional clauses and to more clearly convey the author's logic, the translators found it advisable to split the sentence into two parts.

Biraq biz ağylshyn, ämerijkan, francuzdarsha sharasyzdyqtan, eŋ bolmağanda orys qadary mūqtazh bolandyqtan, ony qoldanbajmyz, dybysty ädispen üjretiuden "tūtas söz" ädisimen üjretiu qolajlyraq, oŋajyraq bolsa, qoldanamyz. – My ne primenjaem ego kak v anglijskom, amerikanskom i francuzskom, gde on primenen ot bezyshodnosti, ili zhe kak v russkom jazyke, gde on byl neobhodim. Esli obuchenie metodom "celogo slova" budet udobnee i proshhe obuchenija zvukovym metodom, to primenim ego.

[We do not use it like in English, American, and French, where it is used out of necessity, or like in Russian, where it was required. If the whole-word method proves to be more convenient and simpler than the phonetic method, then we will use it].

In the following fragments, the author's thought expressed in one complex sentence is translated in two sentences. The first sentence contains the essence, and the second sentence contains an addition to the main thesis in the form of a note *pri etom* (with this) and the intensifying particle *dazhe* (even). This transformation helps to follow the logic of the presentation and better understand the content of the scientist's work.

Bastapqy kezde zhüriu ädisin alğansha, olar da balalar sekildi öz denesin özi bijlej almaj, müsheleri özine könbegen syjaqty, özi zhūmsağan zhağyna zhürmegen syjaqty bolyp, är isin bölek-bölek andap, är qozğalysyn bölek-bölek alyp, sanap istegen syjaqty bolady. – Na pervom jetape, poka nauchatsja, oni tozhe, kak deti, ne mogut upravljat' svoim telom, podchinjat' sebe dvizhenie konechnostej, zadavat' napravlenie svoim dvizhenijam. Pri jetom kontrolirujut kazhdoe svoe dejstvie i kazhdoe dvizhenie, delaja vse ponemnogu. [At the initial stage, while they are learning, they, like children, cannot control their bodies, direct the movement of their limbs, or guide their movements. They constantly monitor each action and movement, doing everything little by little].

Abajdyŋ öleŋderin myŋ qajtara oqyp, zhattap alyp zhürgen adamdardyŋ da Abajdyŋ kejbir öleŋderiniŋ mağynasyn tüsinip zhetpej zhürgenderin bajqağanym bar. – Ja zamechal, chto dazhe mnogie iz teh, kto mnogokratno chital i znaet naizust' stihi Abaja, ne vnikli v glubinu ego otdel'nyh stihotvorenij. Dazhe nekotorye sprashivajut, chto jetim hotel skazat' Abaj. [I have noticed that even many who have read and memorized Abai's poems multiple times have not delved into the depth of his individual poems. Some even ask what Abai intended to convey with them].

Sentence splitting a complex Kazakh sentence into two separate sentences in its Russian translation is driven by cause-and-effect relationships (*üjtkeni – так как*), where the first sentence provides the cause of the phenomenon, and the second sentence explains the effect.

Ol – sauattau ädisterin synağanda, olarğa oqyu üjretetin ädis dep qaramaj, zhazyu üjretetin ädis dep qarau kerek degen bolady, zhaza bildiriuge qolajly ädis – oqyj bildiriuge de qolajly bolady, üjtkeni negizdik närse, zhazyu, oqyu zhaza bilumen birge qosyla bilip ketetin qosalqy küjdegi närse. – "Это говорит о том, что, оценивая методы обучения грамотности, нужно рассматривать их как методы обучения письму, а не чтению. Метод, эффективный для обучения письму, будет эффективным и для обучения чтению, так как главное – это письмо, а чтение развивается вместе с письмом и является второстепенным."

[It means that when assessing literacy methods, they should be regarded not as methods of reading but as methods of writing. The type of method that is effective for teaching writing would also be an effective way of teaching reading, as writing is the primary focus, and reading is a supplementary

skill that develops alongside it.]

Sentence integration is a translation technique where the syntactic structure in the original is transformed by merging two simple sentences into a single complex sentence. In the translation, two sentences from the original are combined into one sentence, as this is dictated by the meaning of the sentences and the translators' aim to convey the sequence of actions with a coordinating conjunction such as *or*, which implies merging into a single sentence in the Russian translation.

Sonan kejin zhazdyrady. Basqa äripterdiŋ arasynan izdep taptyrady. – Zatem daet zadanie napisat' ego ili najti ego sredi drugih bukv. [Then, it assigns the task of either writing it or finding it among other letters].

Two separate sentences with parallel syntactic structures, expressing a contrast between the speed of learning Russian and Kazakh, are combined into one in the translation due to the similarity in syntactic structure of the sentences and the use of the contrasting conjunction *a [but]*:

Russha oqyp dūrystap hat zhaza biluge az bolsa 8–9 zhyl kerek. Qazaqsha dūrystap hat zhaza biluge bir-eki-aq zhyl kerek. – Chtoby nauchit'sja pisat' na russkom jazyke, samoe men'shee ponadobitsja 8–9 let, a na kazahskom jazyke, vsego lish' odin-dva goda. [To learn to write in Russian, it will take at least 8–9 years, but to learn to write in Kazakh, only one or two years are needed].

The strategy of merging two separate sentences during translation brings closer the concepts of zhazyu – oqyu (writing – reading), which are somewhat contrasted in the original text, emphasizing their similarity rather than their difference.

Zhazyu – äripterdiŋ sügiretin sala tiziu. Oqyu – äripterdiŋ dybystaryn ajıta tiziu. – "Письмо — умение рисовать буквы; чтение — умение произносить буквы." [Writing is listing images of the letters; reading is representing the sounds of letters.]

Grammatical substitutions refer to a translation method in which a grammatical unit in the original text is transformed into a unit in the target language with a different grammatical meaning. Grammatical substitutions include: 1) substitution of word forms, 2) substitution of parts of speech, 3) substitution of sentence elements [35].

1) substitution of word forms:

In the provided examples, the noun *adamdy (a person)* in the accusative case is replaced with the noun *chelovek (a person)* in the nominative case, as the participial phrase in the original text is transformed into a relative clause with the conjunction *kotoryj (who)* in the translation. In Russian, such constructions are synonymous and interchangeable. In the second example, which involves comparing different teaching methods, the adjective *zhaqsy (good)* is translated into its comparative form *luchshe (better)*.

Oqyj da, zhaza da biletin adamdy ajtamyz. – Jeto chelovek, kotoryj umeet chitat' i pisat'. [This is a person who can read and write].

Ärijne, aldyŋğysy zhaqsy ekendigine dau zhoq. – Bessporno, pervyj metod luchshe. [Undoubtedly, the first method is better].

2) substitution of parts of speech:

In the provided sentences, the participles *köshirip (copying)* and *syrganatyp (sliding)* are translated as verbs of the main action *perepishite (rewrite)* and *kataet (roll)*, which results in a restructuring of the syntactic structure and a change in parts of speech in the translation:

Tömendegi sözderdi köshirip san-esimniŋ astyn syzyp körsetiŋder. – Perepishite sledujushhie slova, ukazhite slova, javljajushhiesja imenem chislitel'nym, podcherkivaja ih snizu. [Rewrite the following words, indicating the numerals by underlining them].

Nemese shanağa tirkep, bireu syrğanatyp zhiberip otyryp üjretiu syjaqty. – Ili kak budto kto-to kataet, pricepiv obuchaemogo k salazkam. [Or, as if someone is rolling by attaching the learner to a sled].

In the given sentence, the pronoun *ol (he/she/it)* is replaced by the noun *chelovek (person)* due to the contextual meaning and to clarify the understanding of the subject-object relationship:

Ol dybystarğa arnalğan äripterin tanyj bilu kerek. – Chelovek dolzhen umet' podobrat' sootvetstvujushhuju bukvu dlja kazhdogo zvuka. [A person must be able to match the appropriate letter to each sound].

In the given sentence, the gerund *qajta- qajta istelip (being done)* is replaced by the derived noun *povtoreniem (repetition)*, due to both contextual meaning and the functional-stylistic nature of the text as an educational-scientific style:

Istiŋ shapshaŋ istelu küjge zhetiui, qajta-qajta istelip, dağdyğa ajnalğan kezde bolady. – Provornogo vypolnenija dela mozhno dostich' chastym povtoreniem do poluchenija

navykov. [Achieving swift performance of a task comes from frequent repetition until it becomes a skill].

In the following sentence, the accusative case form of the noun *adamdardy (people)* is replaced with the dative case form *k ljudjam (to people)* with a preposition, due to the combination with the verb *otnesti (to classify)*, which governs the indicated case:

Ondaj adamdardy tolyq sauatty deuge bola ma? – Mozhno li ih otnesti k gramotnym ljudjam? [Can they be classified as literate people?]

The future tense verb *bolady (will be)* is omitted in the translation and replaced with a zero copula in the present tense. A literal translation with the verb *budet (will be)* would distort the meaning of the statement (similar to the alternative translation *Art can be diverse*):

Öner türli bolady. – Iskusstvo raznoobrazno. [Art is diverse].

3) substitution of sentence elements

Grammatical substitutions involving word forms are closely related to changes in sentence constituents. In the following example, the compound nominal predicate *söz bolady (will be a word)* is translated into the simple verb *govorit (say)*:

Ol ne degen söz bolady? – O chem jeto govorit? [What does this mean?]

In the next example, the simple verbal predicate *oŋajlanady (eases)* is replaced with the compound nominal predicate *stanet proshhe (became easier)*:

Ädisin alğan soŋ, qajsysy da bolsa oŋajlanady. – Kak tol'ko vy prinorovites', stanet proshhe. [Once you get the hang of it, it will become easier].

In the sentence, the meaning conveyed by the repetition of the particle *ma* and the conditional mood of the verb *ashsaq (if open)* is expressed in the translation by the coordinating conjunction *ili (or)* and the compound conjunction *kogda – togda (when, then)*:

Sauattylyq negizi oqyu ma, zhazyu ma – mūny ashsaq, sauattau ädisi qajsysyniki bolatynyn da ashamyz; üjtkeni – sauattylyqtyŋ negizi ne närse bolsa, sauattau ädisi de sonyki bolyu kerek. – Kogda my pojmem, chto javljaetsja osnovoj gramotnosti – chtenie ili pis'mo, togda i vyjasnim, k chemu otnositsja metod obuchenija; tak kak metod obuchenija dolzhen otnosit'sja k tomu, chto javljaetsja osnovoj gramotnosti. [When we determine whether reading or writing is the foundation of literacy, then we will also find out to which method of teaching it belongs; because the teaching method should correspond to the foundation of literacy].

When translating between languages with different structures, lexical and grammatical transformations are crucial, but lexical-grammatical transformations – referred to as complex transformations in V.N. Komissarov's classification – also play a significant role. It should be noted that the concept of complex translation transformations is not thoroughly covered in the scientific literature. These transformations include descriptive translation (explication), antonymic translation, and compensation.

Explication (descriptive translation) is a lexical-grammatical transformation where a lexical unit is replaced by a phrase that fully conveys its meaning in the target language[14]. For instance, the concept of *tūqymynan (from the lineage)* is descriptively translated as *roots from the renowned bi:*

Sheshesi Ūlzhan bäjbishe Qarqaraly uezindegi Äbdirej, Myrzhyq degen zherdegi Qarakesektiŋ Boshan ruynan, Bertis bidiŋ tūqymynan. – Mat' ego Ulzhan rodom iz poselenija Abdirej, Myrzhyk Karkaralinskoj gubernii plemeni boshan roda karakesekov, kornjami ot izvestnogo bija Bertisa. [His mother, Ulzhan, is from the settlement of Abdiray, Myrzhyk in the Karakol district, from the Boshank tribe of the Karakeseks, with roots from the renowned bi Bertis].

The realia/lacunae *dombyra* (a musical instrument) is explained descriptively in parentheses:

Oqyu küj esebinde, auyz dombyra esebinde, äripter nota esebinde. – Chtenie – jeto kak pesnja, rot – jeto dombra (muzykal'nyj instrument), a bukvy – jeto noty. [Reading is like a song, the mouth is a dombyra, and letters are notes].

Explication allows for the transmission of the meaning of any non-equivalent word in the original text. For example, when listing the components of a Kazakh yurt, a descriptive translation is both logical and practical: *shanyraq* – a wooden circle at the top of the yurt, *uyq*– curved wooden poles supporting the top circle of the yurt, *kerege* – a wooden lattice forming the frame of the yurt, *tündik* – a felt cover for the shanyraq, *zhelbau*– a rope tied to the shanyraq, *beldeu* – a woolen rope encircling the yurt over the felt, etc.

A drawback of descriptive translation is its bulkiness and verbosity. Therefore, explication becomes one of the main factors of asymmetry in parallel corpora, requiring text

alignment. Certainly, translators face the necessity of conducting additional research to more accurately convey the national and cultural specifics of non-equivalent lexicon.

Antonymic translation is a lexical-grammatical transformation in which the content of the text is replaced with an antonymic meaning, either through the use of antonyms, negative conjunctions, or prefixes. For instance, the negative verb *bolmaj (literally 'if it does not exist')* is translated with an antonymic word *budet* (will be).

Sauattylyq asyly oqyu bolmaj, zhazyu bolsa, sauattau ädisiniŋ de asyly oqyudiki bolmaj, zhazyudiki bolyu kerek. – Esli sushhnost'ju gramotnosti budet pis'mo, a ne chtenie, to, sootvetstvenno, sushhnost'ju metoda obuchenija gramotnosti budet metod obuchenija pis'mu, a ne chteniju. [If the essence of literacy is writing, not reading, then the essence of the literacy teaching method should be a method for teaching writing, not reading].

Antonymic translation adds variability and allows for sentence restructuring, but it is used relatively infrequently in text translation.

Compensation is a lexical-grammatical transformation where the lost meaning of the original text in translation is "compensated" or made up for. This type of transformation is influenced by the logic and meaning of the broader context or the entire work as a whole.

In the example below, *sheberlerdiŋ qolynan shyqqan närselermen (literally, things that came from the hands of craftsmen)* is translated into Russian with a stylistic nuance of the artist's word, while *sol sheberlerdiŋ istegen närselerin qaj zherde körse de ajtpaj tanyjdy (literally, recognizes the things made by that craftsman, no matter where he sees them)* is rendered as *bystro smozhet opredelit' avtora ljubogo proizvedenija (can quickly determine the author of any work)*. These transformations are explained by the fact that A. Baitursynuly's educational manual *Ädebiet tanytqysh* (Literary Studies) is dedicated to the fundamental concepts of an introductory course in literary studies, thus compensating for and detailing the meaning of the original text.

Sheberlerdiŋ qolynan shyqqan närselermen tanys adam sol sheberlerdiŋ istegen närselerin qaj zherde körse de ajtpaj tanyjdy. – Chelovek, znakomyj so stilem hudozhnika slova, bystro smozhet opredelit' avtora ljubogo proizvedenija. [A person familiar with the style of a word artist can quickly determine the author of any work].

Another manifestation of compensation involves the transformation of sentences with causal relationships. In the context of A. Baitursynuly[6], a complex sentence is translated by rearranging the main and subordinate clauses: first presenting the consequence, then the cause. This lexical-grammatical transformation facilitates a more accurate conveyance of the author's intent in the translation.

"Tūtas söz" ädisin ne mänispen qoldanyp otyrğandaryna nazar salmaj, tek basqalar qoldanyp zhatqanda, bizge de qoldanyu kerek deushiler bar. – Est' nekotorye ljudi, kotorye schitajut, chto i nam nado ispol'zovat' metod "celogo slova", no ne ponimaja, s kakoj cel'ju ego ispol'zovat', a tol'ko potomu, chto ego ispol'zujut drugie. [Some people believe that we should also use the 'whole word' method, not considering the purpose for which it is used, but simply because others are using it].

It is worth noting that, unlike explicatory translation, compensation, like antonymic translation, is a phenomenon that occurs relatively rarely in translation practice.

In this study, we have analyzed statistical and linguistic data based on the A. Baitursynuly's Kazakh-Russian parallel corpus. The parallel corpus plays a crucial role in improving translation quality by identifying equivalents of grammatical constructions. This paper will explore the types and methods of grammatical transformations that significantly influence translation accuracy, focusing on the causative conjunctions *sebebi (because)* and *öjtkeni/üjtkeni* (because) in the Kazakh language. The frequency and equivalents of their translation into Russian will be demonstrated in **Table 1**.

The frequency of usage of the conjunctions *jtkeni/üjtkeni* and *sebebi* employed in the Kazakh language to express causal relationships, indicates that in translation into Russian, the conjunction *öjtkeni* is most accurately and frequently translated as *potomu chto* in 54% of cases, while *sebebi* is often rendered as *tak kak* in 29% (See **Figure 1**).

The remaining 17% of variability in the translation of the conjunctions *öjtkeni/üjtkeni* and *sebebi (*as *poskol'ku; ottogo, chto; tot, kotoryj; delo v tom, chto; v silu togo, chto),* which express causal relationships, can be attributed to the following factors: 1) the synonymy of these conjunctions; 2) the translators' efforts to convey the academic style of A. Baitursynuly's educational and scientific works.

Table 1. Usage frequency of the conjunctions *óitkeni/úitkeni* and *sebebi* and their translation variants into Russian in A. Baitursynuly's parallel corpus.

Conjunctions	Translation Variants into Russian	Frequency of Usage
öjtkeni/üjtkeni	*potomu chto – because*	25
	tak kak – because	10
	poskol'ku – because, since	2
	tot, kotoryj – such as, the one that	1
	delo v tom, chto – the thing is that, fact is that	1
	Total	40
sebebi	*tak kak – because*	4
	ottogo, chto – because	2
	potomu chto – because	1
	v silu togo, chto – due to the fact that	1
	Total	8

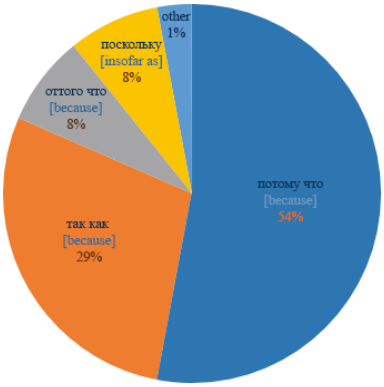

Figure 1. Percentage Distribution of Translation Variants into Russian.

One of the key factors contributing to the variability in translation is the need to convey the unique stylistic features of the author[8]. The author's intentions are shaped by the Kazakh scholar's educational mission[34]. A. Baitursynuly's idiolect is characterized by the deliberate and frequent repetition of key words to emphasize important points and by a passionate desire to explain complex concepts. A clear example of this can be seen in the following excerpt.

Ol – sauattau ädisterin synağanda, olarğa oqyu üjretetin ädis dep qaramaj, zhazyu üjretetin ädis dep qarau kerek degen bolady, zhaza bildiriuge qolajly ädis – oqyj bildiriuge de qolajly bolady, üjtkeni negizdik närse, zhazyu, oqyu zhaza bilumen birge qosyla bilip ketetin qosalqy küjdegi närse. – Jeto govorit o tom, chto, ocenivaja metody obuchenija gramotnosti, nuzhno rassmatrivat' ih kak metody obuchenija pis'mu, a ne chteniju. Metod, jeffektivnyj dlja obuchenija pis'mu, budet jeffektivnym i dlja obuchenija chteniju, tak kak glavnoe – jeto pis'mo, a chtenie razvivaetsja vmeste s pis'mom i javljaetsja vtorostepennym.

[This suggests that when evaluating literacy teaching methods, they should be viewed as methods for teaching writing rather than reading. A method that is effective for teaching writing will also be effective for teaching reading because writing is the primary focus, and reading develops alongside writing, serving as a secondary skill].

In the original text, the sentence is presented with a cause-and-effect relationship. In the Russian translation, there is a grammatical transformation involving the division of the sentence into two. The cause-and-effect relationship is conveyed in the second sentence as *üjtkeni – tak kak*. Additionally, to preserve the unique idiolect of the scholar, the key words are also repeated in the translation. The diagram below illustrates the correlation of key word repetitions in the original language and in the translation. As shown in the diagram, the number of lexical repetitions in both the original and the translation is identical (See **Figure 2**).

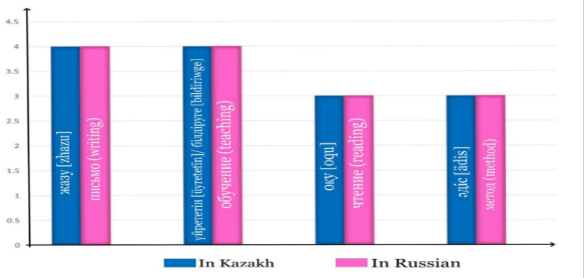

Figure 2. The correlation of keyword repetitions in source language (SL) and target language (TL).

Thus, the use of parallel corpora as electronic linguistic data sets in different languages allows for the automation and acceleration of the analytical work process with original and translated texts. It helps uncover and examine various types of grammatical transformations in works and their transla-

tion variants, gather the necessary volume of statistical and linguistic data for further analysis, processing, and generalization, and provides an opportunity to more thoroughly analyze and improve the quality of the translation of specific works.

The use of various types of translation transformations (translation techniques) is undoubtedly closely related to extralinguistic factors: historical, cultural, mental, and social. For instance, means of expressing expressiveness in one language may be neutralized in another and acquire a neutral stylistic tone. Under such circumstances, expressiveness seeks reflection in various grammatical markers, such as adverbial words, other linguistic elements, or situational manifestations. The analysis of grammatical transformations in translation confirms our belief that a translator must master the literary norms of both languages and feel at ease in the linguistic environment in which they work. Naturally, they should step beyond its boundaries when necessary (e.g., when dealing with slang, terminology, idioms, etc.), but this should be done cautiously, considering many factors: the extralinguistic situation, context, and moral-ethical norms.

All of this allows us to conclude that the successful fulfillment of the cultural, social, and aesthetic functions of translation is possible only if the translator has a deep and comprehensive knowledge of the source language and the history and culture of the people reflected in it. Depending on the type and structure of the language pair, as well as the specificity and content of the texts, different grammatical strategies and translation techniques may be employed.

In particular, common methods of pragmatic adaptation when translating media texts from Russian into English include adding necessary (explanatory) information, omitting redundant information, rearranging linguistic elements in the translated text compared to the original, replacing grammatical and lexical units, and converting implicit information into explicit, taking into account the recipient's background knowledge.

Additionally, independent sentences and parts of complex sentences may undergo rearrangement—changing the placement or order of linguistic elements in the translated text. This can be due to the syntactic characteristics of the language (e.g., fixed word order in English, freer word order in Russian, final placement of the main verb in Turkic languages, etc.).

Thus, the use of parallel corpora as electronic linguistic data sets in different languages allows for the automation and acceleration of the analytical work process with original and translated texts. It helps uncover and examine various types of grammatical transformations in works and their translation variants, gather the necessary volume of statistical and linguistic data for further analysis, processing, and generalization, and provides an opportunity to more thoroughly analyze and improve the quality of the translation of specific works.

5. Conclusions

Translation is a multifaceted and creative process that demands not only professional expertise but also a deep understanding of various elements. A translator must be aware of the historical context, national and cultural nuances, the author's creative individuality, as well as the genre and style characteristics, among other factors. In addition, the translator must effectively apply various translation transformations, ensuring that the norms of the target language are respected in order to accurately convey the meaning of the original text.

For example, the Kazakh-Russian parallel corpus of A. Baitursynuly demonstrates how different types and methods of grammatical transformations can impact the quality of the translation. Transformations such as sentence splitting, sentence merging, and grammatical substitutions enhance both the quality and adequacy of translating specific parts of a text as well as the entire text. Future research could focus on identifying patterns in the individual author's style, gathering statistical and linguistic data from the parallel corpus, and conducting in-depth analyses. This would facilitate a more thorough exploration of various linguistic phenomena in the original works and their translation into the target language.

The use of a parallel corpus, such as the Kazakh-Russian corpus of A. Baitursynuly, is invaluable in analyzing translation transformations. By examining grammatical modifications like sentence splitting, merging, and substitution, translators can improve both the quality and accuracy of their work. This approach not only enhances the translation process but also deepens our understanding of how linguistic transformations shape the relationship between source and target languages. Future studies on the stylistic patterns

of individual authors and a detailed linguistic analysis of translation transformations will further advance the field of translation studies, offering insights into both the translation process and the cultural exchange between languages.

Author Contributions

Conceptualization, supervision, project administration—G.B., investigation, visualization, writing and editing—A.I. and N.A., methodology and data curation—A.B., formal analysis and validation—G.A. and M.B. All authors have read and agreed to the published version of the manuscript.

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Data Availability Statement

The material for the study consists of a selected works corpus by Ahmet Baytursynov, which includes educational, methodological, scientific, and journalistic texts from various years in both Kazakh and Russian. The texts analyzed include "Oqy qyraly", "Til qyral", "Til zhūmsar", "Bayanshy", "Älippe", "Älippe astray", "Sauat ashkysh", "Ädebiet tanytkysh", "Masa", "Qyryq mysal", among others. The bilingual corpus was analyzed using the following research methods and techniques: exhaustive sampling of linguistic material from the original texts and their translations, comparative analysis of these texts, analysis of methods and types of grammatical transformations in translation, and text alignment methods.

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Conflict of Interest

The authors stated that there are no conflicts of interest.

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