

Araştırma Makalesi / Research Paper

Using Digital Tools to Analyze Cultural Factors in the Translation of Toponyms in Mayne Reid's Book *The Headless Horseman*

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Abstract

This paper examines how the integration of digital tools and traditional translation techniques can help address the cultural and linguistic challenges involved in translating toponyms in Mayne Reid's book *The Headless Horseman*, translated from English into Kyrgyz. Since toponyms carry rich cultural, historical, and contextual significance, they are often difficult to render accurately across languages. This study highlights the importance of preserving cultural identity and contextual accuracy by combining modern digital tools such as AntConc and Voyant Tools with established translation strategies. Through a comparative analysis of the source text (ST) and target text (TT), AntConc is used to assess the frequency, distribution, and contextual usage of toponyms, while Voyant Tools reveals translation patterns and thematic emphases. Traditional translation techniques such as transliteration, localization, and explanatory translation complement these digital analyses by bridging cultural and linguistic gaps, as supported by relevant scholarly literature. The findings indicate that transliteration preserves phonetic authenticity, localization adapts names to resonate with Kyrgyz cultural contexts, and explanatory translation helps clarify unfamiliar references. Although digital tools enhance the translation process by offering data-

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driven insights, they cannot fully capture the nuanced cultural meanings embedded in place names. This underscores the continued necessity of human interpretation to ensure culturally appropriate and accurate translations. The study contributes to cross-cultural literary translation by demonstrating the value of a blended methodological approach and proposing a practical framework for translating toponyms, particularly in lesser-studied language pairs.

Keywords: cultural considerations, digital tools, AntConc, Voyant Tools, toponyms, translation strategies, traditional methods, cross-cultural literary translation

Mayne Reid'in *Başsız Süvari* Adlı Eserindeki Yer İsimlerinin İngilizceden Kırgızcaya Çevirisinde Kültürel Faktörleri Analiz Etmek İçin Dijital Araçların Kullanılması

Öz

Bu makalede, Mayne Reid'in *The Headless Horseman* (*Başsız Süvari*) adlı eserindeki toponimlerin İngilizceden Kırgızcaya çevrilmesinde karşılaşılan kültürel ve dilsel zorlukların, dijital araçların geleneksel çeviri teknikleriyle birleştirilmesi yoluyla nasıl aşılabileceği incelenmektedir. Toponimler; içerdiği zengin kültürel, tarihsel ve bağlamsal anlamlar nedeniyle diller arasında doğru biçimde aktarılması güç öğeler olarak kabul edilir. Bu çalışmada, AntConc ve Voyant Tools gibi modern dijital araçları yerleşik çeviri stratejileriyle bütünleştirerek kültürel kimliği ve bağlamsal bütünlüğü korumanın önemi vurgulanmaktadır. Kaynak metin (KM) ile hedef metin (HM) arasındaki karşılaştırmalı analize dayanan araştırma, AntConc'i kullanarak toponimlerin sıklığını, dağılımını ve bağlamsal kullanımını değerlendirirken Voyant Tools, çeviri kalıpları ile tematik nüansları aydınlatmaktadır. İlgili literatürün de desteklediği üzere transliterasyon, yerleştirme ve açıklayıcı çeviri gibi geleneksel yöntemler bu dijital analizleri tamamlayarak kültürel ve dilsel boşlukları gidermektedir. Elde edilen bulgular, transliterasyonun fonetik özgünlüğü koruduğunu, yerleştirmenin adları Kırgız kültürel bağlamına uyarladığını ve açıklayıcı çevirinin belirsiz atıfları netleştirdiğini göstermektedir. Bununla birlikte dijital araçlar veri odaklı içgörü sağlasa da ince kültürel nüansları bütünüyle aktaramadıkları için doğru ve etkili bir çeviri yapmak adına insan yorumuna her zamankinden daha fazla ihtiyaç duyulduğu ortaya çıkmaktadır. Bu çalışma, dijital araçlar ile geleneksel yöntemleri birleştiren bütünlük bir yaklaşımın etkinliğini göstererek kültürlerarası edebî çeviriye katkıda bulunmakta ve özellikle daha az incelenen dil çiftlerinde toponim çevirilerini ele almak için pratik bir çerçeve sunmaktadır.

Anahtar Kelimeler: kültürel değerlendirmeler, dijital araçlar, AntConc, Voyant Tools, toponimler, çeviri stratejileri, geleneksel yöntemler, kültürlerarası edebî çeviri

Geographical names – including cities, landmarks, and regions are difficult to pose particular challenges in cross-cultural communication. Their rich historical, cultural, and contextual associations make them difficult

to translate without losing subtle meaning (Nord, 1997, p. 13; Gile, 2009, p. 45). These difficulties intensify in literary works because place names often convey thematic and narrative significance (Munday, 2016, p. 29).

Mayne Reid's novel *The Headless Horseman: A Strange Tale of Texas* (Reid, 1865) illustrates these complexities. Set in 19th-century Texas, the story features numerous toponyms that contribute to the cultural setting and narrative tension. Translating these toponyms into another language requires balancing linguistic differences with cultural sensitivity (House, 2015, p. 77).

Modern digital tools such as AntConc and Voyant Tools provide data-driven methods for analyzing word frequencies, collocations, and thematic patterns. While these tools enhance textual analysis, they cannot fully capture the cultural depth and symbolic meanings embedded in place names. Therefore, traditional translation strategies such as transliteration, localization, and explanatory translation remain essential for conveying cultural identity and context (Bassnett, 2013, p. 41).

This paper proposes a combined approach that uses both digital tools and traditional methods to improve the accuracy and cultural relevance of toponym translation. By integrating quantitative data with qualitative insight, the study presents a framework that enhances translation outcomes while recognizing the continued importance of human interpretation.

Literature Review

Toponyms act as key indicators of cultural, historical, and social meaning (Pöchhacker, 2004, p. 53). As Nord (1997, p. 17) notes, place names reflect collective memory and root narratives in specific cultural settings. Gile (2009, p. 46) adds that geographical references help situate characters and immerse readers in the story's cultural environment.

In literary translation, how place names are translated significantly affects the representation of the source culture (Munday, 2016, p. 48). House (2015, p. 82) warns that mishandling toponyms may weaken a text's cultural integrity. Scholars such as Bassnett (2013, p. 65) and Schäffner (2004, p. 30) support translation strategies - transliteration and localization to maintain reader engagement while preserving the source culture.

While these strategies have been studied in widely spoken language pairs, less attention has been given to underrepresented pairs like English and Kyrgyz in our case (O'Hagan & Ashworth, 2013, p. 91). Digital tools such as AntConc and Voyant Tools can detect patterns in translation, but human insight is still needed to interpret cultural nuances (House, 2015,

p. 112). Dural, Askari, and Akbari (2014, p. 22) highlight that digital tools must be complemented by translator judgement when handling culturally sensitive terms.

Research on Kyrgyz translation confirms that cultural and phonetic factors often prevent direct equivalents (İbraimova, 2016, p. 56; İbragimov, 2009, p. 5). Studies on Kyrgyz translation theory and practice (Abdiyev, 2008, p. 14; Abdrahmanova, 2019, p. 63) also advocate for combining digital tools with culturally aware strategies. This study follows that direction by applying an integrated approach to the translation of toponyms in *The Headless Horseman*.

Methodology

A mixed-methods approach was used to analyze the translation of toponyms from English into Kyrgyz in *The Headless Horseman*, combining both quantitative and qualitative techniques for a comprehensive review. First, AntConc was employed to identify and count key toponyms in the source text (ST) and target text (TT), and to examine collocations that revealed cultural or narrative associations. Next, Voyant Tools was used to generate visualizations such as word clouds and frequency charts, which highlighted thematic patterns and showed which terms became more or less prominent in the TT.

Alongside these digital analyses, three traditional translation strategies - transliteration (Bassnett, 2013, p. 67), localization (House, 2015, p. 79), and explanatory translation (Schäffner, 2004, p. 35) were evaluated to understand their impact on cultural fidelity and narrative coherence. Based on these findings, a comparative framework was applied to determine whether each toponym was transliterated, localized, or explained, and to assess how translator choices aligned with patterns identified through AntConc and Voyant Tools (O'Hagan & Ashworth, 2013, p. 93).

Finally, visual representations including an AntConc frequency bar chart (Figure 1) and a Voyant Tools word cloud (Figure 2) illustrated the quantitative contrast between ST and TT toponyms. These visuals supported the qualitative interpretation of translation strategies used in the Kyrgyz version.

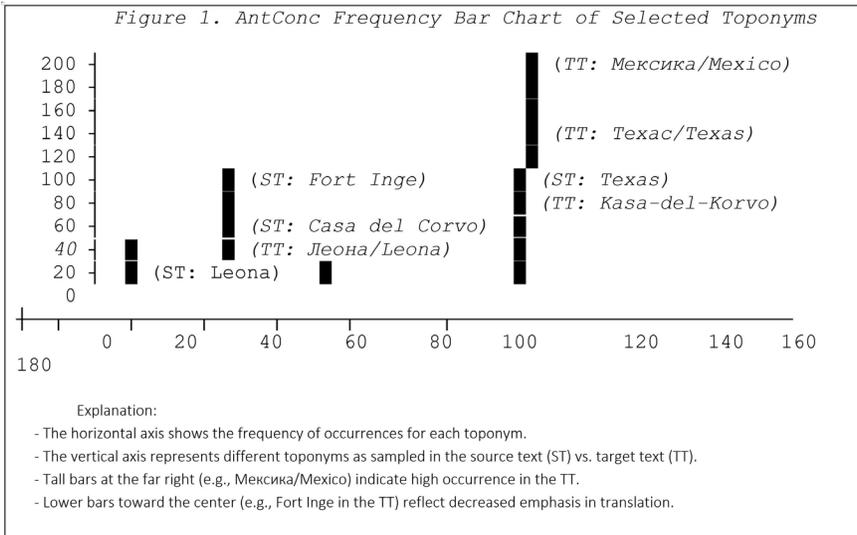


Figure 1: AntConc frequency bar chart of selected toponyms.

This chart provides a schematic overview of how AntConc data can be visualized using a bar chart format. Each bar represents the frequency of a specific toponym in the source text (ST) and the target text (TT). For example, the bar labeled “Мексика (Meksika)” reaches 180 occurrences in the TT, indicating a significant increase compared to just 7 occurrences in the ST. In contrast, “Fort Inge” shows a notable decrease, with 91 mentions in the ST dropping to only 23 in the TT. These contrasts highlight which toponyms gained or lost prominence through the translation process, sup



Figure 2: Voyant Tools word cloud of toponyms in ST and TT.

Figure 2 presents a comparative view of word clouds highlighting key toponyms in *The Headless Horseman* as they appear in the source text (ST) on the left and the target text (TT) on the right. The relative font size of each term indicates its frequency: larger words appear more frequently, while smaller ones are mentioned less often. For example, “TEXAS”

dominates the ST word cloud, reflecting its frequent usage in the English version, whereas “MEXICO” appears smaller. In contrast, in the TT word cloud, “МЕКСИКА (Meksika)” is prominently featured, suggesting increased emphasis in the Kyrgyz translation. Some place names show a shift in prominence: “Fort Inge” in the ST is rendered as “Иңж форт (Ing Fort)” in the TT and appears with reduced size, indicating diminished significance. “Casa del Corvo” retains a medium size in both versions, implying consistent thematic importance. “Leona” appears as a moderately sized term in both texts, suggesting it is relevant but not central.

These differences in word size visually convey how certain toponyms were emphasized or downplayed in translation, offering insights into cultural and contextual shifts. In particular, the transformation of “MEXICO” into the more prominent “МЕКСИКА (Meksika)” underscores how geographical references may be adapted to align with target-reader expectations. By enabling quick visual comparison, the word clouds supplement frequency charts and bar graphs, providing an accessible overview of textual emphasis across both language versions.

Key Excerpts From the Kyrgyz Translation

Several passages from *Suiuntbek Bektusunov's Kyrgyz translation of The Headless Horseman*, titled «Башы жок чабендес (*Başı jok çabandes*)», illustrate the diverse ways in which place names have been rendered in the target language:

1. *Леона суусу (Leona suusu) – (Leona River): “...the headless horseman felt safe only when he was on the far side...” (TT p. 47; ST p. 25)*
2. *Сан-Антонио (San Antonio) – San Antonio: “...about a hundred miles south of the old Spanish town of San Antonio...” (TT p. 52; ST p. 30)*
3. *Иңж форт (Inj Fort) – (Fort Inge): “A flag with stars flutters on top of Fort Inge...” (TT p. 80; ST p. 57)*
4. *Каса-дель-Корво (Kasa del Korvo) – (Casa del Corvo): “...the architecture of Casa del Corvo is Moorish-Mexican style...” (TT p. 91; ST p. 65)*
5. *Рио-де-Нуэсес дарыясы (Rio de Nueses darıyası) – (Rio de Nueces): “...the cheerful company settled under the shade by the Rio de Nueces...” (TT p. 112; ST p. 79)*

These examples show how added descriptors like “суусу (suusu)” or “дарыясы (darıyası)”, meaning “river”, help clarify the geographic nature of certain locations in the translation (TT, pp. 47, 112). Borrowed terms

such as “форт (fort)” or “прерия (preriya)” demonstrate minimal morpho-phonetic adaptation, maintaining close ties to the source language (TT, p. 80).

Transliteration (e.g., “Сан-Антонио,” TT p. 52) and explanatory translation (e.g., “дарыясы (daryyası),” “суусу (suusu),” TT pp. 47, 112) are frequently employed. Borrowings like “форт” (fort), preserve the original military context while fitting Kyrgyz phonology (TT p. 80). A notable shift is observed in the use of “Мексика (Mexico),” which appears more often in the TT than in the ST (TT p. 130 vs. ST p. 44), suggesting a cultural or narrative emphasis shift during the translation.

Discussion

AntConc revealed significant frequency adjustments (e.g., the high count of “Мексика” in the TT). These findings (Figure 1) show that certain toponyms were amplified, possibly to resonate more strongly with Kyrgyz readers. Voyant Tools (Figure 2) supported this observation, showing “Мексика (Meksika)” as a dominant term in the TT word cloud (TT, p. 130).

From a qualitative perspective, these shifts align with cultural adaptation strategies. For instance, references to “Fort Inge” which may be less culturally relevant for Kyrgyz readers, decreased (potentially less relevant to Kyrgyz cultural experience) diminished (TT, p. 80), while “Mexico” references increased to strengthen the broader geographical context (TT, p. 130). Such shifts may reflect either deliberate or subconscious ‘shaped by perceived target-reader or interest (Baker, 2007, p. 155).

Traditional Techniques vs. Digital Tools

Traditional Techniques:

1. *Transliteration*

- **Advantages:** Preserves original phonetics, offering an authentic foreign “feel” (Bassnett, 2013, p. 69).
- **Disadvantages:** It may readers who lack context and deeper cultural connotations can be lost (House, 2015, p. 83).

2. *Localization*

- **Advantages:** Aligns with Kyrgyz linguistic norms, potentially enhancing readability (TT, p. 52 for “Сан-Антонио (San Antonio)” without added descriptors).
- **Disadvantages:** Risks diluting the original cultural essence if over-applied (Schäffner, 2004, p. 32).

Explanatory Translation

- **Advantages:** Clarifies references by adding descriptors (“суусу (suusu),” “дарыясы (dariyası),” TT, pp. 47, 112), enriching comprehension.
- **Disadvantages:** Excess footnoting can disrupt narrative flow (Baker, 2007, p. 156).

Digital Tools

AntConc

- **Advantages:** Pinpoints exact frequency changes, collocation patterns, and word distributions.
- **Disadvantages:** Lacks the capacity for interpreting cultural depth (House, 2015, p. 84).

Voyant Tools

- **Advantages:** Offers visual overviews (e.g., word clouds, trend graphs), highlighting key terms and their thematic weights.
- **Disadvantages:** Similar to AntConc, it cannot gauge emotional or cultural resonance without human input (O'Hagan & Ashworth, 2013, p. 95).

Comparing and Combining Both Approaches

While traditional techniques rely on linguistic skills, cultural literacy, and interpretive judgment, digital tools facilitate systematic pattern detection. Integrating both yields a comprehensive translation method:

Advantages of Integration:

- **Data-Driven Insights:** Frequency and collocation data (see Figure 1) guide translators to potential inconsistencies or cultural shifts.
- **Cultural Nuance:** Translator expertise ensures place names convey the intended cultural or historical nuance (TT, p. 91 for “Корво үйү (Korvo üyü),” preserving Spanish roots yet clarifying meaning in Kyrgyz).
- **Efficiency:** Automated detection of repeated terms or unusual frequency spikes prompts deeper investigation.

Challenges:

- **Time and Skill Requirements:** Translators must learn to operate digital tools effectively, balancing numerical data with intuitive cultural insight.

- **Overreliance on Quantification:** Excess focus on raw frequencies might overshadow subtler narrative or emotional cues (House, 2015, p. 85).

By merging these approaches, translators can confirm where toponyms may require explanation (e.g., “Инж форт (Inj Fort),” TT, p. 80) or if certain place names are overemphasized to the detriment of narrative coherence. Digital tools are an initial diagnostic, while human expertise refines the final cultural presentation.

Findings and Results

Quantitative Analysis

Toponym Frequency in ST			Toponym Frequency in TT		
Term	Frequency	Percentage	Term	Frequency	Percentage
Леона (Leona)	46	10.85%	Leona	52	14.69%
Сан-Антонио (San Antonio)	4	0.94%	San Antonio	11	3.11%
Инж форту (Fort Inge)	23	5.42%	Fort Inge	91	25.71%
Каса-дель-Корво (Casa del Corvo)	35	8.25%	Casa del Corvo	77	21.75%
Рио-де-Нуэсес (Rio de Nueces)	4	0.94%	Rio de Nueces	13	3.67%
Техас (Texas)	132	31.13%	Texas	103	29.10%
Мексика (Mexico)	180	42.45%	Mexico	7	1.98%

Table 1: Frequency comparison of toponyms in ST and TT.

The column headings in Table 1. compare each toponym’s raw count and percentage in both the TT and the ST. Notably, “Мексика (Meksika)” rises to 42.45% in the TT from just 1.98% in the ST, underscoring a stronger emphasis on Mexico in the Kyrgyz translation. Conversely, “Fort Inge” drops from 25.71% in the ST to 5.42% in the TT, indicating reduced attention to this military setting.

Qualitative Analysis of Strategies

Source Term	Target Term	Technique	Page	Suggestion
Leona River	Леона суусу (Leona suusu)	Transliteration	4	Effective; no changes
San Antonio	Сан-Антонио (San-Antonyo)	Transliteration	5	Add cultural context footnote
Fort Inge	Инж форт (Ing Fort)	Borrowing	36	Reverse order to “форт Инж”
Casa del Corvo	Корво үйү (Korvo üyü)	Explication	39	Include brief cultural note
Rio de Nueces	Нуэсес дарыясы (Nueses dariyası)	Transliteration	53	No changes

Table 2: Translational techniques applied to specific topo

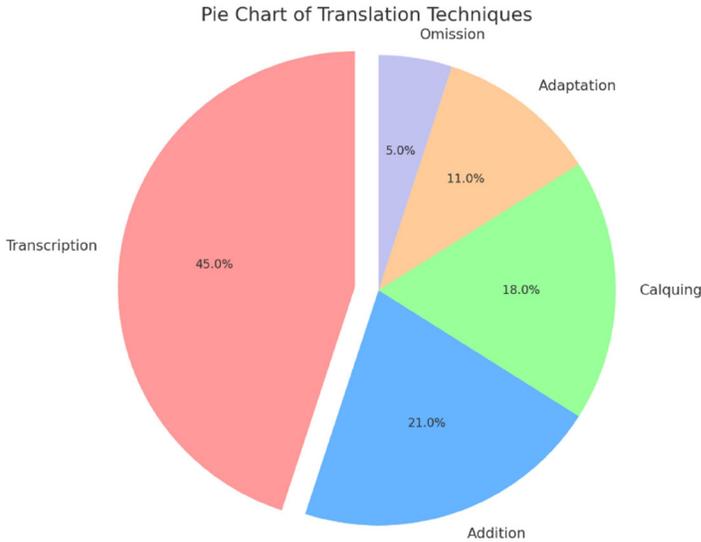


Figure 3: Pie chart of translation techniques.

The pie chart illustrates the proportional use of five distinct strategies—transcription, addition, calquing, adaptation, and omission—in rendering toponyms. Notably, transcription occupies the largest segment (45%), indicating that nearly half of the observed cases involved directly transferring the source text's form into the target language. The next most common method is addition (21%), in which extra explanatory elements are introduced, while calquing (18%) involves word-for-word or structure-based translation of specific components. Adaptation (11%) shows a

smaller portion, reflecting changes to align with cultural or linguistic norms, and omission (5%) suggests that in a few instances, certain elements were removed entirely. Overall, the chart highlights the translator’s preference for retaining original forms whenever possible, with other strategies used more selectively to address specific cultural or contextual needs.

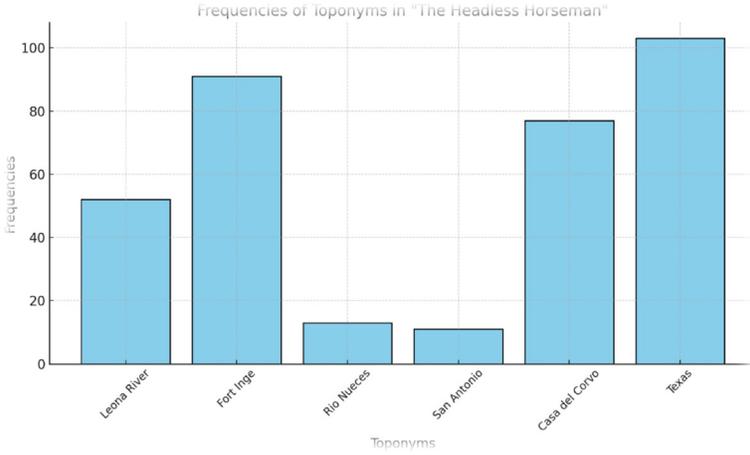


Figure 4: Bar chart of toponym frequencies.

The bar chart compares the occurrences of several key place names—*Leona River*, *Fort Inge*, *Rio Nueces*, *San Antonio*, *Casa del Corvo*, and *Texas*—in *The Headless Horseman*. Observing the vertical axis reveals that Texas stands out as the most frequently mentioned location, closely followed by Fort Inge and Casa del Corvo. Meanwhile, Leona River appears in the mid-range, while Rio Nueces and San Antonio register lower frequencies. This visual snapshot indicates which toponyms hold greater narrative weight in the source text, guiding translators to consider how cultural significance and reader familiarity might influence their strategies—especially for those more frequently or less frequently referenced within the novel.

Conclusion

This study illustrates how digital tools—specifically AntConc and Voyant Tools—can efficiently reveal toponym frequency, distribution, and thematic shifts in Mayne Reid’s *The Headless Horseman*. By pairing these quantitative insights with traditional translation techniques (transliteration, localization, and explanatory translation), translators can better understand how cultural and linguistic elements develop in the target text. For instance, heightened references to “Мексика (Meksika)” and reduced attention to “Fort Inge” signal deliberate or implicit narrative realignments. At the

same time, the rendering of “Leona River” as “Леона суусу (Leona suusu)” and “Casa del Corvo” as “Корво үйү (Korvo üyü)” showcases the translator’s intuition in preserving cultural depth and context.

Moreover, this integrated approach balances machine-driven precision with human interpretive skill. Automated analyses highlight irregularities and patterns, but translator expertise remains crucial for capturing emotional nuance, historical resonance, and cultural authenticity—factors quantitative data alone cannot fully convey. The findings confirm that phonetic accuracy and contextual significance are best maintained through a synergy of corpus-based research and informed judgment, especially for language pairs lacking direct equivalents. This methodology enhances accuracy, safeguards narrative integrity, and ensures cultural fidelity. Future work might extend these techniques to similarly rich literary texts or refine pedagogical strategies by integrating computational tools into translator training, thereby equipping practitioners with robust skills for addressing the complexities of cross-cultural translation.

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Author Contributions Nurgul Karybekova (%70): Conceiving the study, data collection, data analysis, writing up, submission and revision. **Muhittin Gümüş (%30):** Writing the extended summary, submission.

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Extended Summary

The article titled “Using Digital Tools to Analyze Cultural Factors in the Translation of Toponyms in Mayne Reid’s Book *The Headless Horseman*” addresses the following points:

This study shows how digital tools especially AntConc and Voyant Tools can effectively reveal toponym frequency, distribution, and thematic shifts in the translation of Mayne Reid’s *Başsız Süvari*. By pairing these quantitative findings with traditional translation techniques (transliteration, localization, and explanatory translation), translators can better understand how cultural and linguistic elements develop in the target text. For example, rendering “Leona Nehri” (*Leona River*) as “Леона сууу (ST) / Leona suusu (TT: *Leona Suyu*)” and “Casa del Corvo” as “Корво үйү (ST) / Korvo Üyü (TT: *Korvo evi*)” demonstrates the translator’s intuition in preserving cultural depth and context.

The integrated approach balances machine-driven processes with human interpretive skills. While automatic analyses can detect irregularities and patterns, the translator’s expertise remains crucial for grasping emotional nuances and maintaining cultural authenticity. There are factors that purely quantitative data cannot fully convey.

The findings indicate that phonetic accuracy and contextual meaning are best achieved through a synergy of corpus-based research and informed judgment—particularly for language pairs without direct equivalents. This method increases translational accuracy, preserves narrative coherence, and supports adherence to cultural concepts.

Comparing traditional techniques with digital tools yields the following observations: Within traditional techniques, transliteration preserves original phonetics and offers an authentic sense of foreignness; however, for readers lacking context it may cause confusion and risk losing deeper cultural associations. Localization aligns with Kyrgyz language norms and can improve readability without extra descriptors; yet if overapplied, it may drift away from the original cultural essence. Explanatory translation clarifies references by adding descriptors and enriches understanding, but excessive footnotes or explanations can disrupt the flow.

Regarding digital tools, AntConc readily detects precise frequency changes, collocation patterns, and word distributions, but it lacks the capacity to interpret cultural depth. Voyant Tools provides visual overviews highlighting key terms and their thematic weights through word clouds and trend graphs yet, similar to AntConc, it cannot measure emotional or cultural resonance without human input.

When traditional and digital approaches are compared, the former rely on language skills, cultural literacy, and interpretive judgment, while the latter facilitate the detection of systematic patterns. Integrating both produces a comprehensive translation methodology. Despite the important advantages of integration, data-driven findings such as frequency and collocation statistics can nudge translators toward potential inconsistencies or cultural shifts; this is helpful,

but it also brings the risk of overemphasizing numbers. Translator expertise in cultural nuance ensures that place names convey the intended cultural or historical resonance. From an efficiency standpoint, automatic detection of repeated terms or unusual frequency spikes encourages deeper investigation.

Considering the challenges, it is advisable to account for the time and skills required. Translators should learn to use digital tools effectively while balancing numerical evidence with intuitive cultural insight. Overprioritizing quantification may lead to an excessive focus on raw frequencies, overshadowing subtler narrative or emotional cues.

By combining these approaches, translators can verify where place names may require explanation, or whether certain toponyms are being overemphasized to the point of undermining coherence and fluency. The most important point not to overlook is that, although digital tools can make the initial detections, human expertise cannot be delegated when it comes to articulating the final cultural presentation.

