

TRANSLATION OF CULTURAL UNITS IN MACHINE  
TRANSLATION SYSTEMS

*Kuvondikova Shaydo To‘lqinovna*

*Oliy toifali ingliz tili fani o‘qituvchisi*

*shaydokuvandikova@gmail.com*

*+998913354228*

**Abstract:** The rapid development of artificial intelligence and machine translation technologies has significantly influenced modern translation studies. Machine translation systems such as Google Translate and DeepL Translator are widely used for translating texts between different languages. However, the translation of cultural units remains one of the most difficult challenges for machine translation systems. Cultural units include idioms, proverbs, national traditions, historical references, customs, and culturally specific lexical items that reflect the identity and worldview of a particular nation. This thesis examines the problems of translating cultural units in machine translation systems, especially between English and Uzbek languages. The study analyzes semantic, pragmatic, and cultural difficulties that arise during automatic translation. Comparative and descriptive methods are used to evaluate translation accuracy and cultural adaptation in machine-generated texts. The findings demonstrate that machine translation systems often translate cultural expressions literally, resulting in semantic inaccuracies and loss of cultural meaning. The research also highlights that human translators possess cultural competence and contextual understanding that artificial intelligence systems still cannot fully replicate. The study concludes that machine translation technologies require further improvement in cultural and contextual processing, particularly for low-resource languages such as Uzbek.

**Keywords:** Machine Translation, Cultural Units, Artificial Intelligence, Translation Studies, Comparative Linguistics, English Language, Uzbek Language, Cultural Adaptation, Semantic Equivalence, Neural Machine Translation

### Introduction

Modern machine translation technologies have become an essential part of global communication. Artificial intelligence systems enable users to translate texts quickly and efficiently between different languages. Despite technological progress, translation quality remains problematic when texts contain cultural elements and nationally specific expressions.

The relevance of this research is determined by the increasing use of machine translation systems in education, science, business, and intercultural communication.

Translating cultural units correctly is important because language reflects national mentality, traditions, and social values. Incorrect translation of cultural expressions may lead to misunderstanding and loss of meaning.

The theoretical significance of the study lies in examining the relationship between language, culture, and translation technologies within the framework of Translation Studies and Comparative Linguistics. The practical significance of the research involves identifying the strengths and weaknesses of machine translation systems in processing culturally specific expressions.

### **Literature Review**

The issue of cultural translation has been widely discussed by scholars in linguistics and translation theory. Eugene Nida emphasized the importance of dynamic equivalence in translation, arguing that translators should preserve meaning rather than literal form. Similarly, Peter Newmark classified cultural words into categories such as ecology, material culture, social culture, and customs.

Researchers in artificial intelligence and machine translation have noted that neural machine translation systems improved grammatical accuracy but still experience difficulties with cultural context. Studies show that machine translation systems frequently mistranslate idioms, metaphors, and nationally specific lexical units because they rely mainly on statistical and neural language patterns rather than cultural understanding.

Recent investigations into low-resource languages demonstrate that Uzbek language translation still faces challenges because of limited digital corpora and insufficient contextual datasets.

### **Main Part**

Cultural units represent language elements closely connected with national traditions, customs, historical experiences, and social values. Such units often have no direct equivalents in another language. Therefore, their translation requires not only linguistic knowledge but also cultural competence.

Machine translation systems usually translate texts automatically based on algorithms and neural language models. Although these systems can process general informational texts effectively, they struggle with culturally marked expressions.

For example, Uzbek expressions related to hospitality, family traditions, and national customs may lose their original meaning during automatic translation into English. Likewise, English idiomatic expressions such as “break the ice” or “piece of cake” are often translated literally into Uzbek, producing semantically incorrect or unnatural results.

Another important problem concerns proverbs and phraseological units. Proverbs contain deep cultural meanings that cannot always be transferred through direct lexical equivalence. Machine translation systems often ignore contextual and pragmatic

aspects of such expressions.

The grammatical and syntactic differences between English and Uzbek also complicate cultural translation. English belongs to the Germanic language family and generally follows Subject-Verb-Object structure, while Uzbek belongs to the Turkic language family and commonly uses Subject-Object-Verb order. These structural differences affect sentence organization and semantic interpretation in machine translation.

Furthermore, cultural adaptation requires understanding emotional tone, historical background, and social norms. Human translators can interpret these aspects according to communicative context, whereas machine systems still lack full pragmatic competence.

### **Results and Discussion**

The research demonstrates that machine translation technologies provide speed and accessibility but remain limited in translating cultural units accurately. Literal translation remains one of the most common problems in AI-based systems. As a result, many culturally specific expressions lose their emotional and semantic value.

Comparative analysis shows that machine translation systems perform better with technical and informational texts than with culturally rich materials. English-Uzbek translation is especially challenging because of significant linguistic and cultural differences between the two languages.

The findings indicate that artificial intelligence technologies require further improvement in semantic analysis, contextual interpretation, and cultural adaptation. Expanding Uzbek linguistic corpora and integrating cultural databases into neural translation systems may improve translation quality in the future.

### **Conclusion**

The translation of cultural units remains one of the most difficult tasks in machine translation systems. Although artificial intelligence technologies have improved significantly in recent years, they still face limitations in semantic and cultural interpretation.

The study concludes that machine translation systems cannot fully replace human translators in culturally sensitive texts. Human cultural competence, contextual understanding, and pragmatic interpretation remain essential for accurate translation. Future developments in artificial intelligence may help improve cultural adaptation and translation accuracy, especially for low-resource languages such as Uzbek.

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