FROM ECOLOGICAL BALANCE TO DYNAMIC OPTIMIZATION: A NEW MODEL FOR HERITAGE TRANSLATION

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Abstract: *Heritage translation is typically viewed as a static "eco-balance" between source and target texts; however, this static view cannot tackle ecological de-contextualization, i.e., the separation of living heritage from its physical and behavioural ground. This paper argues for a theoretical shift away from static balance to dynamic optimisation. By linking current applications of Eco-Translatology with the multilevel analytical lens of CDST, the research constructs a conceptual framework that argues sustaining living heritage requires feedback at the micro (textual), meso (institutional) and macro (ideological) levels. It provides a systemic perspective on de-contextualisation mitigation and audience empathy in heritage translation.*

Keywords: *ecological balance; dynamic optimization; heritage translation; Eco-Translatology; feedback loop; model building*

Аннотация: *Перевод наследия обычно рассматривается как статичный «эко-баланс» между исходным и целевым текстами; однако такой статичный взгляд не позволяет решить проблему экологической де-контекстуализации, то есть отрыва живого наследия от его физической и поведенческой основы. В статье обосновывается необходимость теоретического сдвига от статичного баланса к динамической оптимизации. Связывая современные применения эко-транслатологии с многоуровневой аналитической оптикой теории сложных динамических систем (CDST), исследование выстраивает концептуальную рамку, согласно которой поддержание живого наследия требует обратной связи на микро- (текстовом), мезо- (институциональном) и макро- (идеологическом) уровнях.*

Это обеспечивает системный взгляд на смягчение де-контекстуализации и на эмпатию аудитории в переводе наследия.

Ключевые слова: *экологический баланс; динамическая оптимизация; перевод наследия; эко-транслатология; петля обратной связи; построение модели.*

Annotatsiya: *Meros tarjimasi odatda manba va maqsad matnlar o‘rtasidagi statik “eko-balans” sifatida qaraladi; biroq bu statik qarash ekologik dekontekstualizatsiya, ya’ni tirik merosni uning jismoniy va xulq-atvor asosidan ajratish muammosini hal qila olmaydi. Ushbu maqola statik balansdan dinamik optimallashtirishga nazariy siljish zarurligini asoslaydi. Eko-translatologiyaning amaliy qo‘llanmalarini CDST ning ko‘p darajali tahliliy optikasi bilan bog‘lash orqali tadqiqot kontseptual asos yaratadi va tirik merosni saqlab qolish mikro (matn), mezo (institut) va makro (mafkura) darajalarida qayta aloqani talab qilishini ta’kidlaydi. Bu meros tarjimasida dekontekstualizatsiyani yumshatish va auditoriya empatiyasiga tizimli nuqtai nazarni taqdim etadi.*

Kalit so‘zlar: *ekologik balans; dinamik optimallashtirish; meros tarjimasi; eko-translatologiya; qayta aloqa halqasi; model qurish..*

1. Introduction

Heritage translation (of museum narratives, ICH texts or tourism websites) is usually seen as a task of finding equivalent words. Once the translated text looks “balanced” with the source text, the task is considered done. This assumption is increasingly challenged by realities of living heritage which are dynamic, embodied and context-dependent.

Eco-Translatology has given us a theoretical framework for seeing translation as an adaptive selection in a translational eco-environment [4]. This theoretical framework establishes “a dynamic system that covers all aspects of the translation world” (Ibid.). From adaptation and selection as principles, Eco-Translatology positions the translator as an active decision maker who must balance ecological conditions between different translation communities (authors, readers, publishers, critics), but current operationalizations of “eco-balance” in specific translation practices tend to focus on textual outcomes at any given time. For living heritage this is not enough: heritage translation needs to be reconceptualized as an ongoing process of dynamic optimization — one that responds to feedback, adapts to changing contexts and sustains the living links between sound, body and meaning.

This paper argues that the conceptual paradigm shift from static balance to dynamic optimization is needed (Eco-Translatology meets multilevel analysis in

CDST). It combines Eco-Translatology and CDST's multilevel analytical framework to identify three dimensions of heritage translation: linguistic-multimodal feedback, institutional-audience feedback and ideological-systemic feedback.

2. Theoretical shift: from static balance to dynamic optimization

2.1 The limits of text-centric Eco-balance

Up to now, most applications of Eco-Translatology to heritage translation are textual adaptation oriented. The main approach used is the "three-dimensional transformation", which selects adaptive options across linguistic, cultural and communicative dimensions [2]; for example, [2] analyzes ICH introductory texts to show that translators need to reconstruct the target eco-environment by optimizing translation methods (transliteration plus annotation to bridge cultural gaps, etc.). Zhang [6] applies three-dimensional transformation to Quanzhou World Cultural Heritage texts; inappropriate sentence structures (e.g., bamboo-joint structure in Chinese retained in English) and inaccurate folk activity translations are found, and specific revisions are proposed so that the translation adapts to the target language ecological environment.

These analyses are useful criteria for textual transplant but also show how translators adjust to immediate linguistic and cultural constraints — they evaluate the translated text as a static product. They ask how to make the text "survive" in the target environment at publication time but do not explicitly consider what happens after the text enters the public domain (how it is received, how it shapes audience perception and how it might need further adjustment). That gap is where the concept of dynamic optimization comes into play.

2.2 Ecological De-contextualization as a Critical Risk

The need for dynamic optimisation is all the more acute when the research considers the risk of ecological de-contextualization. Jiang and Pan [1] define this term as "the way translation and curatorial practice peel heritage elements away from the physical, behavioural and symbolic contexts that give them meaning". If a work song is translated and disseminated only as text or background audio, it loses its connection to the bodily labour that produced it; overseas audiences hear a "disembodied vocal burst" without any way to connect it with human effort.

Jiang and Pan [1] further state that this failure is not only about information loss; it is also about breaking the interdependent links that tie heritage's communicative ecology together. If translation can de-contextualise heritage, then it must also re-contextualise it too — continuously monitoring, feedbacking and

adjusting. Dynamic optimisation is therefore not just a theoretical refinement but a practical necessity for sustaining living heritage ecology.

2.3 CDST as an analytical lens for dynamism

To operationalize this dynamic view, the research can use the analytical framework of Complex Dynamic Systems Theory (CDST). CDST sees language use as a complex system in which multiple components interact and give and receive feedback constantly. Using Li and Zheng's multilevel lens from their systemic review [3], this paper argues that heritage translation optimization must occur simultaneously at three nested levels: micro (individual activities); meso (sociocultural institutions) and macro (ideological structures).

At the micro level, the translator's textual and multimodal choices need to be monitored constantly. At the meso level, institutions (museums, tourism boards, digital platforms) must build feedback into their translation workflows; at the macro level, the ideological assumptions underpinning heritage translation need to be critically reflected on as cultural values change.

A New Model: Dynamic Optimization for Heritage Translation. Based on these insights, this paper presents a three-dimensional conceptual model of dynamic optimization.

Dimension 1: Linguistic and multimodal feedback. The first dimension is moving beyond text-based evaluation. Heritage translation outputs need to be monitored for their ability to maintain links between physical, behavioural and symbolic layers [1], for example by using multimodal cues (split-screen archival footage of physical labour with audio) so that a living heritage element does not get flattened into decorative art; translators and curators must treat audio and visuals as active carriers of meaning which re-anchor the translated text in its live context.

Dimension 2: Institutional and Audience Feedback. At the meso level, dynamic optimization needs feedback from the audience and commissioning institutions (see also [5]). Translators need to strike a balance between global readability and local cultural specificity, but this cannot be determined in advance ([5] shows this in museum artifact translation): glocalization strategy requires dynamic equilibrium between global dissemination and localized specificity; for example, when translating the "Taotie" pattern, [5] says that translating it using literal translation "gluttonous beast" causes cultural misinterpretation, while keeping transliteration "Taotie" preserves culture but annotations are needed so that it can be interpreted globally. This balance has to be tested by audiences and adjusted accordingly — museums and digital platforms should therefore build iterative feedback into workflows.

Dimension 3: Ideological and systemic feedback. At the macro level, dynamic optimization must be critically reflective of ideological assumptions underpinning heritage translation (heritage translation is not only linguistic or cultural but ideological as well — it has to be renegotiated all the time as cultural values and power relations change). This dimension ensures that dynamic optimization is responsive to the living communities heritage serves.

4. Conclusion

This paper has shown that heritage translation needs to move from static "ecological balance" to dynamic optimization: Eco-Translatology has taught us about the adaptive nature of translation, but applications usually treat balance as a one-time textual achievement. By combining Jiang and Pan's [1] critique of ecological de-contextualization with Li and Zheng's multilevel analytical framework of CDST [3], this paper has proposed a three-dimensional model of dynamic optimization which views heritage translation as a continuous feedback-driven process. Future work could apply this optimisation model to multimodal heritage contexts (e.g., digital platforms for Grand Canal haozi [1]) to empirically measure how feedback loops mitigate de-contextualization.

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