

INTERSEMIOTIC TRANSLATION: TRANSLATING TECHNICAL CONTENT INTO VISUAL FORMATS

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Annotation: This article explores the concept and practice of intersemiotic translation—the transformation of verbal technical content into visual formats such as diagrams, charts, symbols, and pictograms. Drawing on Jakobson's theory of semiotic translation and recent multimodal discourse studies, the paper investigates how scientific and technical texts can be effectively restructured for non-verbal communication. Practical examples from technical manuals, safety instructions, and scientific infographics are analyzed to identify the strengths, limitations, and necessary strategies in visualizing technical meaning.

Keywords: intersemiotic translation, visual communication, diagrams, semiotics, multimodal discourse, technical language

Annotatsiya: Ushbu maqola intersemiotik tarjima tushunchasini va texnik matnlarni vizual formatlarga — chizmalar, grafiklar, piktogrammalar va belgilar shaklida ifodalash amaliyotini tahlil qiladi. Yakobsonning belgi tizimlari nazariyasi va multimodal diskurs tahlili asosida texnik va ilmiy matnlarni notil shaklida qanday samarali tarjima qilish mumkinligi o'rganiladi. Texnik qo'llanmalar, xavfsizlik bo'yicha yo'riqnomalar va ilmiy infografikalardan olingan misollar yordamida intersemiotik tarjimaning afzalliklari, cheklovlari va vizualizatsiya strategiyalari yoritiladi.

Kalit so'zlar: intersemiotik tarjima, vizual kommunikatsiya, diagramma, semiotika, multimodal diskurs, texnik til

Аннотация: В статье рассматривается понятие интерсемиотического перевода, а именно — преобразование технического текста в визуальные форматы: диаграммы, схемы, пиктограммы и символы. Основываясь на теории Якубсона о семиотическом переводе и подходах к мультимодальному дискурсу, анализируются способы передачи научной и технической информации в невербальной форме. На основе примеров из технических инструкций и инфографики исследуются преимущества и ограничения визуального перевода.

Ключевые слова: интерсемиотический перевод, визуальная коммуникация, диаграммы, семиотика, мультимодальный дискурс, технический язык

In a world increasingly dominated by visual media, the traditional boundaries of translation are being reshaped. **Intersemiotic translation**, first conceptualized by

Roman Jakobson, refers to the translation of verbal signs into non-verbal sign systems (e.g., images, symbols, graphs) [1, p. 233]. This form of translation is particularly relevant in technical communication, where clarity, accessibility, and brevity are often paramount.

From **airplane safety cards** to **scientific infographics**, the ability to convey complex technical ideas through visual elements has become essential. The question is not only how to translate words between languages, but how to **translate meaning between modalities**.

Theoretical Framework

Jakobson (1959) categorized translation into three types:

- **Intralingual** (within one language),
- **Interlingual** (between languages),
- **Intersemiotic** (between sign systems) [1, p. 233].

Intersemiotic translation involves the interpretation of verbal text into visual or symbolic representation. Multimodal discourse theorists such as Kress & van Leeuwen emphasize that meaning is constructed not just through language but through various semiotic resources—color, shape, space, layout, etc. [2, p. 2].

This perspective provides the foundation for understanding **technical visualizations** as translations of complex verbal content.

Applications in Technical Communication

Safety Instructions

Verbal: “In case of fire, do not use the elevator.”

Visual: → Universally understood symbol that removes language dependency.

Scientific Infographics

A complex explanation of **carbon cycle** can be visualized in a circular diagram showing:

- CO₂ emission sources,
- absorption by oceans and plants,
- human impact.

Such visuals help overcome language barriers and cognitive overload.

User Manuals

Instead of multi-language text:

“Insert battery with the + end facing up,”

a diagram showing the correct battery orientation is more effective and clearer.

Advantages and Limitations

Advantages	Limitations
No need for linguistic knowledge	May oversimplify complex ideas
Universality — effective across cultures	Misinterpretation due to cultural variation in symbols
Speed — quicker understanding	Some abstract concepts are difficult to visualize
Aids low-literacy audiences	Requires design literacy to create accurate representations

Visual translation promotes **accessibility and inclusivity**, especially in cross-cultural or multilingual contexts, but requires **semiotic competence**.

Translation Strategies

Simplification and Segmentation

Break down dense text into **visual sequences** (step-by-step diagrams).

Symbol Standardization

Use globally recognized symbols (ISO, ANSI) to avoid ambiguity.

Visual Grammar Application

Apply principles of **visual hierarchy, proximity, and contrast** to guide comprehension [3, p. 41].

Case Analysis

Example: Airplane Safety Card

Original (text): “Place oxygen mask over your nose and mouth before assisting others.”

Intersemiotic Version:

- Icon of a person placing a mask over face
 - Arrow indicating sequence
 - Child figure shown after adult
- Conveys procedural logic without any text.

This transformation is **not a simplification**, but rather a **modal shift**—a sophisticated translation of meaning into spatial and symbolic forms.

Intersemiotic translation expands the role of the translator from a linguistic mediator to a **semiotic designer**. In technical and scientific contexts, where clarity, speed, and cross-cultural communication are crucial, the shift from text to visual content is not only practical but necessary.

However, this process is not without its challenges. Successful intersemiotic translation requires deep understanding of both **technical meaning** and **visual design principles**. As semiotic complexity increases, so does the translator's responsibility to preserve **accuracy, logic, and usability**.

Ultimately, intersemiotic translation represents the convergence of language,

design, and cognition—offering new possibilities for technical knowledge dissemination in the 21st century.

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