Semantic compression and strategies for ensuring meaning equivalence in simultaneous interpreting

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Abstract. The thesis discusses the mechanisms of semantic compression in simultaneous interpretation (SI) as more of crucial strategies for interpreters. Having faced high-speed source speech that exceeds the cognitive load, the interpreters choose to compress the linguistic surface structures of a message. The paper establishes a systematic framework of compression strategies relying upon Daniel Geli's Effort Model and G. V. Chernov's Theory of Probability-Based Anticipation. These methods are classified into structural condensation and pragmatic omission.

Moreover, the study examines the defensive mechanism for maintaining strict semantic equivalence. In order to safeguard the meaning of a message, the thesis deploys deverbalization and invariance prioritization as critical tools. Ultimately, that the semantic compression is not an arbitrary omission but a highly-governed cognitive operation is stated in the paper.

Key words: simultaneous interpretation, semantic compression, cognitive load, pragmatic omission, syntactic condensation.

Introduction

Simultaneous interpretation is one of the most cognitively demanding human linguistic activities, requiring the concurrent production of speech comprehension, verbal translation, production and self-monitoring. The primary challenge of SI is the lack of control over the speed of the speaker's speech which sometimes exceeds the cognitive load, 150 -180 words per minute which, in turn, immense saturation is faced by the interpreter's cognitive processing capacity. The semantic compression, therefore, serves as the main mechanism for managing this pressure by allowing the interpreters to create spare time for keeping fluency and accuracy.

The process:

Source speech input

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Cognitive processing saturated

↓

Semantic comprehension applied

↓

Spare time generated

↓

Fluent output

Daniel Geli's Effort Model clearly explains why compression is necessary in simultaneous interpretation. Geli puts forward the idea that SI requires concurrent deployment of four prior cognitive resources, which are non-automatic and limited

Interpreting (total cognitive demand)= L+M+P+C

Where:

- *L* is Listening and analysis effort (phonetic decoding and semantic processing)
- *M* is Short-term memory effort (storing information units until production)
- *P* is Speech production effort (lexical retrieval, grammatical planning and articulation)
- *C* is Coordination effort (the executive control required to balance resources)

On the ground that the sum of these demands exceeds the interpreter's total available capacity, cognitive saturation takes place. Therefore, here, semantic compression lowers *P* by reducing output length, thereby easing *M* by shortening storage time. This optimization frees up space for *L*, preventing a total collapse of interpretation quality.

Expending upon Geli's work, G.V. Chernov proposes the concept Probability-Based Anticipation. Chernov argues that interpreters instead of waiting passively for semantic units to conclude, they continuously generate on-time hypotheses about the trajectory of the message based on redundancy, context, and world knowledge. Anticipation acts as a prerequisite for semantic compression. By forecasting the semantic destination of a sentence, the interpreter can safely bypass the redundant syntax. They can immediately compress the message, rather than waiting for the entire source phrase to unfold.

Typology of Semantic Compression Strategies

Semantic compression functions along two main axes: structural/ syntactic condensation and pragmatic/informational omission.

Structural and Syntactic Condension

Structural condensation includes shortening grammatical layout of the message without the omission of its core informative elements. The interpreter omits some linguistic aspects to express the identical concept but in fewer syllables.

- **Clausal Minimalization:** Transforming subordinate relative clause into concise adjective or participial phrases.

Example:

Source language: The decision that was reached by the members of the committee during yesterday's session…

Target language: Kechagi kommitet qarori…

- **Active Voice Conversion:** Transforming passive sentences into active ones when the active voice is shorter and faster.

Example:

Source language: The bilateral trade agreement was signed by the president this morning

Target language: (if directly translated) Ikki tomonlama savdo bitimi bugun ertalab prezident tomonidan imzolandi. (11 words)

(if conversed) Bugun ertalab prezident ikki tomonlama savdo bitimi imzoladi. (8 words)

- **Syntactic Merging:** Condensing two or more complex sentences into a single cohesive phrase by removing repetitive subjects or connectives.

Example:

Source language: Our team analyzed the market data. Then, we designed a completely new strategy based on it. (15 words)

Target language: Bizning jamoamiz bozor ma'lumotlarini tahlil qildi. Keyin esa, biz unga asoslanib yangi strategiya ishlab chiqdik. (15 words)

Jamoamiz bozor ma'lumotlarini tahlil qilib, yangi strategiya ishlab chiqdi. (9 words)

Pragmatic and Informational Omission

Pragmatic omission targets the informational layer of the text, by removing elements that do not affect the fundamental message.

- **Filtering Rhetorical Padding:** Eliminating phatic communications and repetitive honorifics. Expressions like " it gives me immense pleasure and honor to stand before you today to state that…" can be compressed to " I am honored to state that…"
- **Hypernymic Substitution:** Replacing a specific list of coordinate items with a categorial term.
- **Redundancy Stripping:** removing redundant words common in spontaneous speech, such as "advance planning" -"plan"

Conclusion

Semantic compression is a highly profound part of simultaneous interpreting, rather than a simple omission. Operating together with the constraints of Gile's Effort Model, interpreters compress the structural layout of the message with no damage to the meaning following the accuracy and fluency of the speech, additionally, sparing extra time for Listening Effort. With the help of above-mentioned methods (Structural and Syntactic Condensation and Pragmatic and Informational Omission), the interpreter simultaneously can translate with no change in meaning.

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