Towards the Issue of Matrix Mapping of the Translation Process

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Doi:10.5901/mjss.2015.v6n6s5p56

Abstract

This paper analyses the issue of a cognitive model of translation as a matrix structure that provides a new perspective for mapping the translation process. This research is based on J. Holmes's idea of an integrated approach in translation studies and the model he suggested in his work. Following Holmes, L. Tarvi offers a matrix model that describes internal relations within the translation theory, teaching translation and translator training. This model magnifies various sectors for further modelling. Taking Holmes's model into consideration and its graphical representation in the work of L. Tarvi, we consider the translation process as having an interdisciplinary, integrating and heuristic nature, which encourages us to search for a new paradigm in its modelling. We present a model of translation in the form of a matrix which consists of 9 blocks or inputs with their horizontal and vertical mapping. Horizontal mapping is done according to three types of the translator's mental spaces: neurological, representational and conceptual. The vertical mapping is arranged in conformity with three main steps in translation: comprehension, processing and verbalization. Every level is presented with certain cognitive mechanisms, i.e. identification, simultaneous or successive processing, reframing, conceptual correspondence, making a coherent text and reaching communicative goals. The results obtained from a translation experiment lead to new perspectives of seeing the matrix model of translation as a conglomerate of various modelling tools in the translation process depending on the peculiarities of the translation scheme and the translator's mental processes.

Keywords: *Cognitive model, matrix, translation process, mental space, frame*

1. Introduction

1.1 Cognitive models of translation

Within the theory and practice of translation studies, the cognitive theory imposes itself as a valid concept able to disclose the secret of the 'black box' of the translator's mind to explore cognitive mechanisms that serve as the foundation of the translation process. The new paradigm of cognitive translation models is aimed to theorize the mental process of translation through the prism of cognitive sciences, such as artificial intelligence, neuroscience, cognitive psychology and psycholinguistics. The interdisciplinary approach brings fundamental changes to the level of comprehension of what the translation process is like, including its internal components and variables that help to organize and handle the translation act.

Cognitive models of translation focus on the translator's mind as an "information-processing system in which a translation comes from the interaction of intuitive and controlled processes using linguistic and extra linguistic information" (Kiraly 1995, 102). According to Kiraly's model, consisting of information sources, an intuitive workplace and controlled processing center, a translation is based on the interaction of internal cognitive activities.

Another cognitive psychological perspective to view the translation process is taken by Wills (Wilss, 1996). He indicates acquisition of organized knowledge as the main requirement in the translation process with schema as a representation of knowledge that operate in a certain way.

Drawing on the concept of processing capacity and cognitive efforts involved in the translation process, Gile elaborates further on a model of efforts in the interpreting process (Gile, 1995). Gile's model adds to the idea of the non-linearity of translation. By putting forward three types of effort in simultaneous interpreting: (1) efforts related to listening and analyzing; (2) efforts related to discourse production in reformulation; (3) short-term memory efforts), Gile

emphasizes the non-automatic character of the translation process and mental operations. Problems can be solved by looking for alternatives and making certain efforts both long- and short-term.

However, most of the fundamental theoretical cognitive models do not give ready-made solutions and universal construes of translation insights. Lack of empirical evidence and difficulty justifying theoretical hypotheses makes it necessary to reconsider the complexity of the nature of translation and deepen the integration of the multidiscipline.

1.2 Evaluation of Translation Mapping

In the context of interdisciplinary and anthropological approaches to translation, the main emphasis is placed on internal and mental traits of the translator and the structural organizers that could allow the arrangement of information and establish the connections and relations within a mental space using certain structural units. With the tendency to redefine and re-examine traditional translation models, the role of mental or cognitive mapping is being valorized. By mapping we mean structural analysis of a process flow by distinguishing how work is actually done from how it should be done, and what functions a system should perform from how the system is built to perform those functions. The concept of mapping involves drawing up a structure of higher complexity with a network of relationships among its constituents in order to use it as a tool to explain translation processes and to work out translation strategies.

Various meta-models in the form of maps and their graphic versions represent an attempt to describe the field of translation in a concise and schematic way. For instance, Holmes' Map is built on the idea of classifying Translation Studies into three interrelated branches of research: Theoretical, Descriptive and Applied (Holmes 1988: 71).

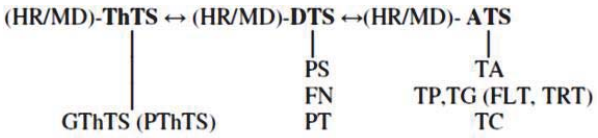


Figure 1. Holmes's Map of Translation Studies (1988, 71).

The 'contextual' model suggested by Lambert and Van Gorp is built as a communication scheme:

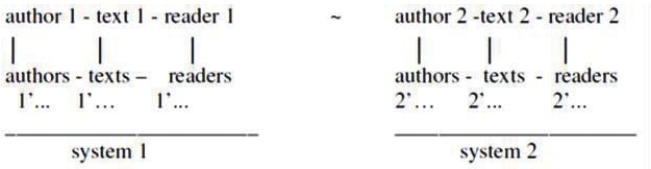
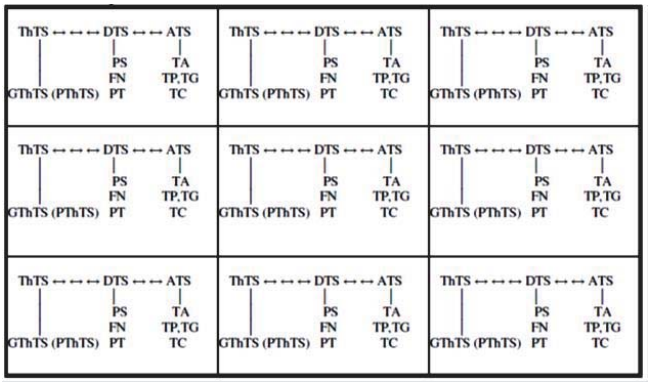


Figure 2. Lambert and Van Gorp's Meta-Model (Lambert and Van Gorp 1985: 43)

The authors argue that the scheme is alleged to "comprise all functionally relevant aspects of a given translational activity in its historical context, including the process of translation, its textual features, its reception, and even sociological aspects like distribution and translation criticism" (Lambert and Van Gorp: 44).

A few other attempts to delineate the graphical representation of translation were made by various other researchers. Basil Hatim, for example, puts forward the idea of a model in the form of a pyramid schematizing a number of TS branches, such as register, text discourse genre and intentionality (Hatim 2001: 88). The idea of a Cognitive Matrix of Translation is elaborated in the works of N.A. Zlobin (Zlobin, 2012). The research by I.N. Remkhe is focused on creating a Cognitive Model of Technical Translation by providing the theoretical background of the cognitive approach to translation and focusing upon its main constituents like frames and translation strategies to be applied to the technical translation within a frame-and prototype approach (Remkhe, 2015).

A Map-Matrix Meta-Model suggested by Tarvi (Tarvi, 2006) describes the field of Translation Studies in terms of its evolution and comprises three lines with three spaces and frames. Tarvi presents her map model in square graphics and places Holmes' map in 16 blocks to combine "the depth of the map with the width of the field" (Tarvi 2008: 7).



Scheme 1. Tarvi's Map-Matrix Meta-Model (Tarvi 2008: 7)

The map-matrix approach assumes looking at interrelations between model elements within a package and provides tools to classify them using blocks and levels, which is considered very efficient in terms of functional distribution among various processes on different levels related to translation.

Considering various cognitive translation maps and their varied typology we suggest a new matrix map of the translation process that serves to enclose the covering of three levels and three stages of translation in the form of blocks and spaces, as shown in Scheme 2.

1 Neurological Mental Space	4 Identification cluster	7 Comprehension
2 Representational Mental Space	5 Re-framing	8 Functional coherency at the level of semantics and grammar
3 Conceptual Mental Space	6 Conceptual Equivalence cluster	9 Cohesion / Communicative effect

Scheme 2. Map-Matrix Translation Model

In the model suggested the graphic organization of translation processes helps to "read" the map and point out some significations and relations. The horizontal layers of the model in Scheme 2 are viewed as belonging to three Spaces (Blocks 1, 2, 3), i.e. Neurological, Mental and Conceptual, denoting various brain activities that regulate the translation process. Each of them interrelates with the vertical central layer (Blocks 4, 5, 6) which is structured to represent the complex cognitive elements of the translation processes including frame and cluster correlations at the level of identification and then further on to look for equivalences. Blocks 7, 8, 9 define the result of the translation process implying comprehension, coherence and cohesion as the main dimensions of text development in the target language. The Map-Matrix can be used as an explanatory tool for methodological purposes as well as for identifying translation inconsistencies.

2. Research Design and Methodology

Purpose and Objectives of Research. The purpose of this research is to identify the efficiency of the Map-Matrix Translation Model in understanding the translation process and translation difficulties that might impede reaching a successful result by various mismatches at the three suggested levels of cognitive performance. *Objectives* of the research include: 1. Identification of the levels of the translator's mental spaces applicable to the translation process. 2. Establishing connections between the graphic representation of the translation elements of the Map-Matrix Model and their representations in the real translation process. 3. Elaborate on the possibility of understanding translation mistakes by reading the Map-Matrix of translation.

Hypotheses. In this research we started from the *general hypothesis*: The use of the Map-Matrix of translation with its graphic representation facilitates the understanding of the cognitive specifics of the translation process as such and the efficiency of its integrated character. The *particular hypothesis* is aimed at: 1. Looking at Russian-English translation incongruity of an integrated nature through the perception of a native speaker. 2. Identifying translation problems by using the Map-Matrix modules and their interrelations.

Sample Group and Content. *The sample group* was formed of 12 student-translators, Russian native speakers from the Department of Translation and Foreign Languages in Magnitogorsk State Technological University, and 4 student-translators, English native speakers from the University of Bath. *The content* sample was formed of 5 texts of an advertising character, taken randomly from the Internet.

Methods of Research Used. In order to valorize the hypotheses and attain the purpose and objectives of the research, we used the following methods and research tools: a protocol-based observation of the translation process, a comparative analysis of translations and enquiry based on a questionnaire. To interpret results we used mathematical-statistical methods and methods for their graphic representation. Within the experiment, we aimed at observing the following correlations: a) between the text in the target language created by the student-translator as a non-native speaker and possible comprehension problems when it reaches the reader; b) between translation mistakes made by the students-subjects of the research and their explanations through the cognitive levels of the Map-Matrix of translation.

3. Data Analysis and Discussion

The case study to exemplify the use of the Map-Matrix Model of translation was carried out in several stages. In the first stage 12 samples of the written Russian-English translations done by Russian student-translators were read by native speakers in order to identify comprehension and interpretation problems with their references to the three levels of the mental spaces presented on the Map-Matrix. The students-subjects were asked to assess the translation samples according to the following criteria:

1 - Incomprehensible (the choice of lexis and grammar structures is inappropriate);
2 - Low comprehension (some parts of the text lack comprehension, some difficulty following the logic of text development for the reader);
3 - Good comprehension (some part of the text has to be reread, difficulty understanding a few words or expressions, which does not impede understanding of the general idea.);
4 - Very good comprehension (text is read once, without having to stop and look closer at some words and their meanings).

The results that had been registered at the first stage of the experiment showed that 37% of the sample translations were found highly comprehensive, 63% were seen as reasonably well translated and only 1 sample was identified as lacking comprehension.

Table 1. Data obtained at the first stage of the experiment.

Samples Subjects	S 1	S 2	S 3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Student 1	3	2	2	2	3	3	2	3	2	2	1	2
Student 2	3	2	2	2	2	2	3	2	2	2	1	2
Student 3	3	2	2	2	3	2	3	2	2	2	1	2
Student 4	3	2	2	2	3	3	3	2	2	2	1	2

In the second stage of the experiment, the data retrieved underwent a thorough analysis to work out regularities of dealing with translation problems using the Map-Matrix Model. By studying the protocol recordings of the English students commenting on the sample translation we drew up a list of the most common mistakes spotted by the subjects and their references to a certain cognitive level of the model. We differentiated mistakes related to the logical structure of a text, i.e. its coherence, and to the surface linguistic structure of a text, i.e. its cohesion with other consequences attributed to the Representational and Conceptual mental spaces as shown in the model. The results obtained showed that with 11 out of 16 mistakes of various kinds the problem lies in the wrong coherence, which is caused by either inappropriate lexis or inadequate choice of grammar structures. For example:

Original sentence: Vi smozhete maksimal'no povisit' effectivnost' ot vashey poezdki.
Meaning: You can maximize the efficiency of your trip
Sample translation: You may have maximized your trip for business efficiency.

The use of the perfect infinitive with the modal verb 'may' in this sentence is considered to be grammatically wrong and the attribute 'business' to the noun 'efficiency' sounds inappropriate and is not implied in the original.

However, there are cases of inappropriacies at the level of Conceptual Mind Space, when translators make

irrelevant choices in terms of stylistic correlations and linking ideas.

Original sentence: Pri etom vi budete imet' mnozhestvo optsii, pomogayushchikh Vam splanirovat' Bashu poezdku b sovershit' yeye, po vozmozhnosti, *naibolee komfortnim obrazom*.

Meaning: With regards to this, you will be faced with a multitude of options helping you to plan your trip and carry it out *in the most comfortable way possible*.

Sample translation: And with so many options to help you plan and execute your trip, finding *an elite toolkit* to make your next business trip *a little less painless* can be *a hassle in itself*.

In this example we can see an excessive use of words with a high degree of semantic expressiveness, such as "elite" and "hassle", which leads to a certain stylistic variation in meaning due to the translator's presumptions and interpretation that led to the wrong communicative effect when reaching the reader.

With the awareness of the translator's mistakes the Map-Matrix Model helps to realize the importance of reframing and conceptual clusters (Blocks 5,6) when doing a translation. Conceptual interpretation and frame clusters between the source and target texts are based on both linguistic and extra-linguistic knowledge and create the processing platform for the translator's further choices.

The final questionnaire aimed at assessing the practical efficiency of the Map-Matrix Model in enhancing the level of comprehension of the main translation problems showed that the Model proved to be rather efficient, with 87% of respondents giving a positive response to its evaluation potential.

4. Conclusion

Empirical investigations done within the study revealed important features justifying the value of cognitive models in Translation Studies and mapping the translation process, in particular. Using the methodology of a protocol-based observation of the translation process, a comparative analysis of translations and a self-assessment questionnaire, we received evidence of a positive result of acquiring the Map-Matrix Model in the translation process by students. Considering the translation process as having an interdisciplinary, integrating and heuristic nature, the Map Matrix Model allows the presentation of the translation process as a conglomerate of various modelling tools depending on the peculiarities of the translation scheme and the translator's mental activities, i.e. identification, simultaneous or successive processing, re-framing, conceptual correspondence, making a coherent text and reaching communicative goals.

The results obtained confirm not only the hypothesis presented, but also the fact that the Map-Matrix Model can be used both for methodological purposes and as a theoretical construe to help students gain a better comprehension of the intricacies of the translation process and to work out strategies to avoid translation mistakes. There is also a question of competence that approximates with using the model as part of pre- and post-translation analysis in conformity with three main steps in translation: comprehension, processing and verbalization. This offers the possibility of framing new aspects that can be approached in future research work to determine whether applying this model to translation process of various text types would be feasible and if so, it would enhance the value of cognitive modelling in the cognitive translation theory.

5. Acknowledgements

The research is funded by the Russian Humanitarian Science Foundation Program "Analog Cognitive Processes of the Language-Oriented and Creative Activities of a Person" Project № 15-04-00455.

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