

N-GRAMS IN MEANING TRANSLATION MODEL OF FICTION: COGNITIVE AND SEMANTIC INTERSECTION

Н-ГРАМИ В МОДЕЛІ ПЕРЕКЛАДУ ХУДОЖНЬОЇ ЛІТЕРАТУРИ: ПЕРЕТИН КОГНІТИВНОГО ТА СЕМАНТИЧНОГО МОДУСІВ

Hrytsiv N.M.,

orcid.org/0000-0001-6660-7161

Candidate of Philological Sciences, Associate Professor,

Doctoral Researcher at the Department of Applied Linguistics

Institute of Computer Sciences and Information Technologies of Lviv Polytechnic National University

The nature of meaning remains the most elusive and certainly the most interesting of the unsolved problems in the translation theory.

The increasing challenges of textual data understanding are daunting. Fiction, as a form of personalization of cognized reality, has thrived a necessity for unpacking context-bound knowledge representations. Tools for digital textual analysis provide us with significant information on various aspects. Words, their order, sequence and frequency are not just arbitrary correlations of tokens. They are meaningful data and shape the author's and translator's cognitive and literary profiles.

Meaning-oriented studies in philology, especially digital humanities, are promising, though rarely addressed from the translation studies perspective. The purpose of the current elaboration is to use digital tools for extracting the anchored meaning of a text. One of the possible ways to evaluate the proximity of source text meaning and target text meaning is secured by n-gram contrasting. The 5-gram and 6-gram units of meaning as embedded in parallel translation corpora are analysed. It allows us to develop and try out an alternative (M)eaning (T)ranslation (M)odel while embracing multilingual or multi-version translations as a tool. Incorporated is the Sketch Engine text processor. Presented in the current paper is a pre-modeling stage.

The paper layout is organized in the following way. Section 2 offers insights into related work on the issue of cognition, translation studies and computer advances toward this task. Section 3 reviews the methods and offers a dataset description. We also briefly depict n-gram functions and typology. After that, in Section 4 we discuss the frame for the cognitive and semantic realization of data under analysis. Section 5 reveals the results and illustrates the findings. Section 6 concentrates on the discussion and further possibilities of the subsidized cognized meaning units. Section 8 concludes the research elaborations.

Key words: N-Grams, meaning, fiction, translation, text, Cognitive Translation Studies, Computational Psycholinguistics.

Природа смислу залишається найбільш невловимою і, звичайно, найцікавішою з невіршених проблем у теорії перекладу.

Посилення питань розуміння текстових даних потребують додаткової уваги. Художня література, як форма персоналізації пізнаваної реальності, породила потребу в тлумаченні контекстно-зумовлених репрезентацій знань. Інструменти цифрового текстового аналізу надають різноаспектну інформацію, здебільшого статистичну. Слова, їх порядок, послідовність і частотність – це не просто довільний набір, співвідношення та розташування лексем. Вони є значущими даними й формують когнітивні та літературні профілі автора і перекладача.

Смисло-орієнтовані дослідження у філології, особливо цифровій гуманітаристиці, є перспективними, хоча їх рідко вивчають з перекладознавчого погляду. Метою цієї праці є використання цифрових інструментів для вилучення закріпленого смислу тексту. Одним із можливих способів оцінки та аналізу близькості смислу тексту оригіналу та смислу тексту перекладу є застосунок *n*-грам зіставлення. Проаналізовано 5- і 6-грамні одиниці смислу, вбудовані в корпуси паралельного перекладу. Це дозволяє розробити та випробувати альтернативну (С)мислову (М)одель (П)ерекладу, використовуючи багатомовні або багатOVERсійні переклади як інструмент. Залучено текстовий процесор Sketch Engine. Представлений у цій статті етап попереднього моделювання.

Роботу організовано таким чином: Розділ 2 пропонує критичний аналіз праць, пов'язаних з питаннями пізнання, перекладознавства та комп'ютерних можливостей у цьому завданні. Розділ 3 розглядає методи та пропонує опис набору даних. Також коротко описуємо функції та типологію *n*-грам. Після цього в Розділі 4 обговорюємо робочі межі для когнітивної та семантичної реалізації аналізованих даних. Розділ 5 охоплює результати та ілюструє висновки. Розділ 6 зосереджено на обговоренні та подальших можливостях отриманих одиниць пізнаваного значення. Розділ 8 підсумовує наукові розробки.

Ключові слова: N-грами, смисл, художня література, переклад, текст, когнітивне перекладознавство, комп'ютерна психолінгвістика.

Introduction. Meaning as a cognitive phenomenon is new and challenging; however, opening new vistas for rethinking meaning theories. Cognitive translation studies erase the boundaries between the conventional terminology names of *meaning*, content,

and message and strive for co-activation rather than demarcating diverse approaches and treat meaning as a process of connecting meaning-making in the text with mental operations, i.e., define meaning from the standpoint of the theory of meanings (semantic

aspects) and theories of mind (cognitive aspects of translation).

This brings us to the understanding that *what* got translated should presumably be the dominant locus of meaning. What is neglected revolves around the background and is sacrificed by the translator. Highly professional translated products are considered. It allows us to develop and try out an alternative (M)eaning (T)ranslation (M)odel while embracing multilingual or multi-version translations as a tool. Presented here is a pre-modeling stage. For keyword n-gram extraction, we incorporate the Sketch Engine text processor.

Meaning understanding and cognition became central in the current study. The *meaning-making* nature of human cognition serves as a departing point for the studio. Language is considered a meaning-making resource, and a text is understood as a structured semantic integrity, an artifact in which the cognized meaning is actualized and encapsulated.

Related works and topic justification.

Fundamental studies of iconic figures in linguistics could have contributed to the solution of several rudimentary questions in the study of meaning in translation. According to Martin Weston, it is a pity – and, considering the progress of the philological field, it is surprising that none of the outstanding scholars of philological profile in the history of linguistics has seriously been engaged in the study of translation. However, this is one of the most evident and essential areas for the application of semantics. This idea a starting point for developing a new meaning-detecting model. To specify, despite the genetic kinship of linguistics and translation studies, these two branches developed separately, with irregular crossings of views and partial borrowing of the tools of linguistics into translation studies, but not vice versa. For this reason, we probably observe a specific gap in the development of scientific ideas regarding clarifying of the essence of the concept of meaning within the linguistic and translation studies disciplines.

In the process of transformation from the (S)ource (T)ext to the (T)arget (T)ext, the *meaning* in translation preserves the dominant essence of the ST; at the same time, it obtains new meanings being generated by the target language and target socio-cultural contexts.

The tricky question is about the possibility of analysing such complex relationships as: the meaning of the ST, the author's intention, the context of the source text and the translated text, the translator's strategy and interpretation of the meaning, and the shared knowledge of the target reader audience.

How can computational linguistics intervene in the analysis that would objectively affect the study and add up to the results?

Answers to these questions are searched in the achievements and elaborations of Cognitive Translation Studies (also Cognitive Stylistics) and Computational Psycholinguistics [1; 2; 3; 5; 6; 7; 16; 19; 21; 22]. These are modern systematic disciplines that have a lot to offer in terms of methodology.

Cognitive Translation Studies (CTS) encompasses cognitive approaches to explaining the translation process. It shapes a theoretical framework that postulates three dominant hypotheses: translation is functional; no texts or discourses, but *interpretations* of these texts and discourses are translated; – translation is a form of *creative imitation*; meaning is not only reproduced, but rather translational meaning also gets co-created or jointly created.

Cognitive stylistics lays the methodological foundations for analysing of the meaning from the standpoint of its preservation, change or partial transformation. It attempts to understand how the meaning is modified for the reader of the translated text to penetrate other people's thoughts.

Computational Psycholinguistics (CP) [6; 7] deals with the development and advancement of computational models related to cognitive mechanisms as well as representations underlying language processing in the human mind/brain.

The focus is on cognitive translation models as based on the interpretive theory of translation and cognitive (translational) hermeneutics.

The task of these models is to secure an algorithm for transporting the meaning of the ST into the TT. Also, to trace to what extent the ST meaning is captured and preserved in the TT. In other words, the models mold the typology of meaning as a cognitive phenomenon and the typology of mechanisms for the translation studies analysis of this meaning.

Such a theoretical and methodological platform leads us to learn the meaning and its manifestation in the structure of the text through: cognition and understanding; interpretation; product analysis; data verification.

In other words, cognition, understanding and interpretation belong to the linguistic realm, while product analysis and data verification should rely on digital tool processing.

The research idea proves promising and is being tested on English-language artistic prose texts of the postmodern era and their Ukrainian translations. Practical application and sample analysis of Natural Language Processing using computer tools is presented.

As mentioned above, Cognitive and Computational Translation Studies are bound in Computational Psycholinguistics. CP methodologically overlaps with (N)atural (L)anguage (P)rocessing research in the sphere of developing algorithms that are able to retrieve the intended meaning of an utterance or a sentence based on its textual (or spoken) realization.

Using these methodological elaborations, we are trying to study the *meaning* of the artistic prose text, the ways of meaning reproduction in translation, and the possibilities of computer tools for processing the language material, with which these meanings are verbalized. Being the basic concept of machine translation and machine learning, n-grams have earned a reputation among Translation Studies scholars [8–14]. The additional feature of CP is dealing with the manner that emulates the way people process (natural) language.

Methods and materials

N-Grams application

The critical function of an n-gram is probability. For now, word n-grams and n-grams probability within the scope of Natural Language Processing is mostly related to statistical properties. The focus is on sentence auto-completion and translational word prediction [4; 15; 20]. In NLP, the n-gram model is instrumental and is adhered to predicting upcoming text (or speech).

However, n-gram application possibilities have much broader benefits in the practice of translation, translator training and computational translatology.

Apart from translation probabilities, n-grams can potentially optimize *re-meaning* in the theory and practice of translation and improve the whole text comprehension by a human (translator, researcher). Another alternative to an n-gram is information retrieval. It improves the retrieval process and results. This aspect is of particular interest to us. N-gram is a core to tracing the cognized meaning. The greater the length (6-gram), the higher the relevant cognitive resemblance in translation.

Besides, Translation Studies analysis may include referred text documents as sample analysis data; n-gram results will assist in contributing relevant additional research preferences.

Thus, n-gram denotes the occurrence and sequence of *n* words. Consequently, there are 2-grams (or bigrams), 3-grams (trigrams), 4-grams, 5-grams, 6-grams. The numbers indicate the length of an n-gram, i.e., 3-gram includes the fragment of 3 words. In other words, a 3-gram (trigram) is a type of n-gram, in which the value of *n* equals 3, that is, tabbing three tokens or words simultaneously (e.g., white stone home).

The targeted *n*-grams are collected from a chosen text(s) or corpus (including parallel translation corpus). Thus, n-gram-based cognitive analysis, along with statistical methods, secures its place in advanced computer-aided translation. We would shift this perspective toward translation studies analysis.

Data description

The proposed study takes advantage of retrieving textual information from one original text and its two translated versions [17; 18; 23]. Preprocessed and extracted textual constructions are framed as multiword expressions (MWEs) represented as n-grams. Key method name is *wordlist*; also: *textual* and *contextual analysis* with close attention to meaning deciphering.

Derived categories are linguistically modified basic categories by means of iterative, recursive morphological or syntactic processes. From the standpoint of structure, this means that semantic-epistemic categories should be considered as operations that can be applied to sensory (cognitive) implementation to enhance the basic linguistic level of categorization of cognitive-sensory data.

This quality is well tested on the chosen platform [<https://app.sketchengine.eu>]. The findings of the obtained graphical results are illustrated in the Subsection 6.2. Experiment.

Our dataset consists of three documents in the English, Ukrainian and German languages. Text type used for text analysis is <doc>.

Conceptual framework

Cognitive mode

Conducting the research within the framework of text linguistics, we intend to analyze such concepts as *cognitive translation unit*, *unit of meaning*, and *meaning in translation*. We are particularly interested

Table 1

Chosen datasets counts			
Document	Tokens	Words	Sentences
English	72,656	60,498	3,021
Ukrainian	74,622	59,471	2,962
German	72,808	60,528	2,738

in the interrelation between these concepts and the advances of n-grams in modeling a meaning translation algorithm.

A *cognitive translation unit* is based on a bundle of translational problems to be recognized. This bundle is predetermined by a problem recognition *indicator* and an *articulation*, that is a clear awareness of the problem that signals the initiation of another bundle, which now refers to *transferring uncertainty* in accordance with each separate category or situation (it can be a proper name, word combination, syntactic problem). A vivid example here is the novel *Lincoln in the Bardo* by George Saunders, especially the unit *sickbox* as a euphemism for coffin for a little boy, which is nothing but challenge for a translator.

The *unit of meaning* acquires the features of compositionality in the text and conventionality in the interpretation. That is, the overall meaning, which is immersed in the social and cultural context is becoming cognized in the text to a certain extent; in its turn, the cognized meaning serves as a meaning to be translated; in other words, the meaning in translation.

Semantic load

The nature of meaning in translation studies is different from any other, so to say, ‘monolingual’ discipline: philosophy, psychology, computer science, etc. The fact is that meaning in translation is a fundamental connection between a) the nature of the translator, the translation activity and b) understanding the essence of *what* the act of translation is based on. That is, it is a core for (co) creation and (re)meaning. Algorithmic rendering of meaning in translation is characterized by the prefix *co*-creating, *co*-constructing, *re*-writing, *re*-naming. Along with this, we still do not have a unified objective scientific approach to the study of meaning as a translation studies category. We are not looking for a definition of what *a unit of meaning* is within the realm of translation. We depart from the realization that co-construction of meaning is a joint process of negotiations and discussions, with the help of which the participants of the verbal exchange

(author-translator-reader) project and receive meaning. Modern research rejects the idea of the translator as an intermediary between the original and translated messages; it also denies the understanding that stable, fixed ‘messages are transferred’ through the interpreter. Instead, the hypothesis of ‘jointly constructed meaning’ is supported. With regard to this, the aim of the research is to test the feasibility of detecting original text meaning via reconstructing its dominant features represented in translation. To challenge the goal, the following algorithm is chosen: to secure electronic versions of the original text and its Ukrainian and German translations; to determine semantic parameterization of meaning-centered study; to form corpora samples for further processing on Sketch Engine digital platform; to fragmentary illustrate pre-modeling stage of Meaning Translation Model (*hereinafter* – MTM).

Meaning Translation Model: prelude

The issue of categorization, parameterization, and typologizing of meaning in translation, as, after all, in related fields of humanitarian disciplines is complex, debatable, and controversial; that is, difficult to solve. The lack of (unity in) the definition of meaning and approaches to its study, which would at least partially outline the derivative nature of re-meaning in translation, does not contribute to the clarification of this concept. At the same time, the absence of a concept of the theory of meaning fascinates those scholars who work with knowledge, categorization and conceptualization of the world; also modeling of this knowledge in the tenets of language structure and dimensions of mental experience. Despite the unbridled interest in this issue, we still do not find unity and unanimity in the interpretation of such a complex phenomenon as meaning in translation. However, it is possible to state the presence of meaning-based researches in translation. This conditional paradigm is aimed at defining qualities, qualifications and component values within meaning various indicators at different language levels: lexical-semantic, structural-grammatical, communicative-pragmatic, and cognitive. Particular attention is

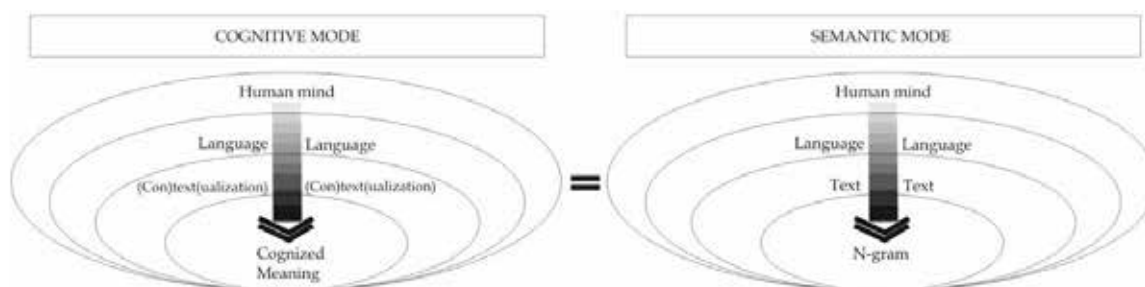


Fig. 1. Cognized meaning that will be encapsulated by an n-gram

paid to the cognitive paradigm of semantics. The main idea of this approach is that the meanings of expressions are mental. Semantics is considered as mapping from the linguistic expressions to cognitive structures. Language itself is considered as a part of the cognitive structure, and not as a separate independent entity. Within cognitive semantics, the emphasis is on lexical meaning, not the meaning of sentences.

In focus – an approach to semantics that is characterized by being cognitive, dynamic, and context-determined. Meaning and concepts are understood as cognitive phenomena and are considered from the standpoint of *actions* over information; meanings are not perceived as static entities. Actions are context-determined since the meaning is considered as subordinated to certain procedures, which, in turn, depend on linguistic

and extralinguistic contexts. Developing ideas of Michael Morris (Metaphysics, Philosophy, and the Philosophy of Language) and Jens Allwood, we offer linguistic representatives of these operations and clarify how they may be used to determine the meaning of linguistic expressions in context. All operations are considered both as processes and as products resulting from these processes. From the standpoint of translation, the angle will depend on the study of translation issues and the chosen paradigm. The realm of our research is a text-centered analysis of translation as a product and translation as corpus.

Results

N-gram obtained results are available in different formats: CSV, XLSX, XML, PDF.

CSV, XLSX format

English corpus

A1		fx	method name: wordlist
	A		B
1	method name: wordlist		
2	corpus: user/nataliia_hrytsiv/lincoln_in_the_bardo		
3	subcorpus: -		
4	Item		Frequenc y
5	the reverend everly thomas The		19
6	of the white stone home		9
7	the reverend everly thomas We		8
8	roger bevins iii The lad		8
9	the reverend everly thomas And		8
10	the reverend everly thomas But		7
11	roger bevins iii It was		7
12	was done to her was		7
13	firesound associated with the matterlightblooming phenomenon		6
14	associated with the matterlightblooming phenomenon		6
15	What was done to her		6
16	the reverend everly thomas It		6
17	firesound associated with the matterlightblooming		6
18	the reverend everly thomas I		5
19	the reverend everly thomas He		5

Fig. 2. Samples in XLSX

Ukrainian corpus

A1		fx	method name: wordlist
	A		B
1	method name: wordlist		
2	corpus: user/nataliia_hrytsiv/lincoln_ukrainian		
3	subcorpus: -		
4	Item		Frequenc y
5	язаний із явищем спалаху світлоречовини		6
6	роджер бевінс iii I ми		5

Fig. 3. XLSX representation of Ukrainian version examples

German corpus

A1		academic use only				
	A	B	C	D	E	F
1	academic use only					
2						
3	corpus,"user/nataliia_hrytsiv/lincoln_german"					
4	subcorpus,"."					
5	Item,Frequency					
6	der mit dem Phänomen der Materienlichtblüte,7					
7	doch jedes Mal durch Mark und,5					
8	mit dem Phänomen der Materienlichtblüte einherging,5					
9	und doch jedes Mal durch Mark,5					
10	jedes Mal durch Mark und Bein,5					
11	Mal durch Mark und Bein dringende,4					
12	vertraute und doch jedes Mal durch,4					
13	durch Mark und Bein dringende Feuerknall,4					
14	der vertraute und doch jedes Mal,4					
15	hrsg. von Douglas L. Wilson und,3					
16	Douglas L. Wilson und Rodney O.,3					
17	verschiedenen Ichs von jenem vormaligen Ort,3					
18	kein einziges von den kleinen A,3					
19	und kein einziges von den kleinen,3					
20	bevor sie nicht mindestens eine Sch,3					
21	durch Mark und Bein dringenden Feuerknall,3					
22	von Douglas L. Wilson und Rodney,3					
23	L. Wilson und Rodney O. Davis,3					
24	Dass er die Flossen von mir,2					
25	Der junge Herr Bristol begehrte mich,2					
26	Aussicht kriegen nich viele Bälger geboten,2					
27	Dich haben sie aber nie begrabscht,2					
28	Die Bürgerkriegsakte von George B. McClellan,2					
29	grams_user_nataliia_hrytsiv_li					

Fig. 4. German variant corpora in XLSX

PDF format
English corpus

N-gram	Frequency
1 the reverend everly thomas The	19
2 of the white stone home	9
3 the reverend everly thomas We	8
4 roger bevins iii The lad	8
5 the reverend everly thomas And	8
6 the reverend everly thomas But	7
7 roger bevins iii It was	7
8 was done to her was	7
9 firesound associated with the matterlightblooming phenomenon	6
10 associated with the matterlightblooming phenomenon	6

N-gram	Frequency
11 What was done to her	6
12 the reverend everly thomas It	6
13 firesound associated with the matterlightblooming	6
14 the reverend everly thomas I	5
15 the reverend everly thomas He	5

Fig. 5. Samples exhibited in Pdf

The Fig. 5 has it that there are 15 items with the total frequency: 113.

Ukrainian corpus

N-gram	Frequency
1 язаний із явищем спалаху світлоречовини	6
2 роджер бевінс ііі I ми	5

Fig. 6. Pdf exhibition of examples in Ukrainian

The Fig. 6 shows 2 items, total frequency equals to : 11.

German corpus

N-gram	Frequency
1 der Heimstatt aus weißem Stein	11
2 die Heimstatt aus weißem Stein	8
3 mit dem Phänomen der Materienlichtblüte	7
4 der mit dem Phänomen der	7
5 der mit dem Phänomen der Materienlichtblüte	7
6 roger bevins iii Der Knabe	7
7 und doch jedes Mal durch	5
8 doch jedes Mal durch Mark und	5
9 doch jedes Mal durch Mark	5
10 jedes Mal durch Mark und Bein	5
11 jedes Mal durch Mark und	5
12 Mal durch Mark und Bein	5
13 mit dem Phänomen der Materienlichtblüte einherging	5
14 und doch jedes Mal durch Mark	5
15 roger bevins iii Und wir	5
16 dem Phänomen der Materienlichtblüte einherging	5
17 Bericht des Butlers D. Strumphort	5

Fig. 7. German corpora in Pdf

The Fig. 7 illustrates that there are 17 items; total frequency: 102.

XML format English corpus

```

<header>
  <corpus>user/nataliia_hrytsiv/lincoln_in_the_bardo</corpus>
  <subcorpus></subcorpus>
</header>
<wordlist attr="word">
  <item>
    <str>
      "firesound associated with the matterlightblooming phenomenon"
    </str>
    <frq>6</frq>
  </item>
</wordlist>

```

Fig. 8. Fragment of XML-formatted tree of elements for English 5-gram and 6-gram

Ukrainian corpus

```

Ukrainian
<header>
  <corpus>user/nataliia_hrytsiv/lincoln_ukrainian</corpus>
  <subcorpus></subcorpus>
</header>
<wordlist attr="word">
  <item>
    <str>"язаний із явищем спалаху світлоречовини"</str>
    <frq>6</frq>
  </item>
  <item>
    <str>"роджер бевінс ііі I ми"</str>
    <frq>5</frq>
  </item>
</wordlist>

```

Fig. 9. XML-formatted tree of elements for Ukrainian 5-6-grams

German corpus

```

<header>
  <note>academic use only</note>
  <corpus>user/nataliia_hrytsiv/lincoln_german</corpus>
  <subcorpus></subcorpus>
</header>
<wordlist attr="word">
  <item>
    <str>"der mit dem Phänomen der Materienlichtblüte"</str>
    <frq>7</frq>
  </item>
  <item>
    <str>
      "mit dem Phänomen der Materienlichtblüte einherging"
    </str>
    <frq>5</frq>
  </item>
  <item>
    <str>"und doch jedes Mal durch Mark"</str>
    <frq>5</frq>
  </item>
  <item>
    <str>"jedes Mal durch Mark und Bein"</str>
    <frq>5</frq>
  </item>
  <item>
    <str>"doch jedes Mal durch Mark und"</str>
    <frq>5</frq>
  </item>
</wordlist>

```

Fig. 10. XML tree of elements – German 5- and 6-gram

Discussion Product sum-up and data verification

Table 2

Document	Items	Total frequency
English	15	113
Ukrainian	2	11
German	17	102

Experiment

For further Translation Studies Analysis we make use of XML format. Responding to TEI standards, this format can be easily maneuvered for constructing parallel research-oriented translation corpus.

N-gram application helps to (re)cognize and computerize the meaning for further elaborations.

By manually introducing the appropriate tag within the text mark-up system, the user adopts

the n-gram results to his/her personal usage demands. Since interested in translation studies analysis of a cognized meaning, we come up with the following:

Used are:

<s> </s> – sentence marking

<cmu> </cmu> – tagging cognitive meaning unit
n = 1; n – number, 1 – sequence numbering

<s> <cmu> I believe I will come with. I said. mrs. abigail bliss From off to my left came a shout -- of terror or victory. I could not be sure -- followed by the familiar, yet always bone-chilling. <cmu n=1> firesound associated with the matterlightblooming phenomenon</cmu n=1>. </s></cmu>

<s> <cmu> Гаразд, думаю, я піду, погодилась я. місис ебігейл бласс Звіддалік, по ліву руку від мене, донісся крик -- настрашений чи переможний, сказати напевне було годі, -- а відразу ж опісля пролунав <cmu n=1> вогнезвук. пов'язаний із явищем спалаху світлоречовини </cmu n=1>; вперше ми почули його вже давненько, та все одно шоразу від нього аж мороз дер по спині. </s></cmu>

<s> Ich glaub, ich komme mit, sagte ich. mrs. abigail bliss Von irgendwo links kam ein Schrei - des Schreckens oder des Sieges, das konnte ich nicht genau sagen -, gefolgt von dem vertrauten und doch jedes Mal durch Mark und Bein dringenden <cmu n=1> Feuerknall, der mit dem Phänomen der Materienlichtblüte einherging</cmu n=1>. </s></cmu>

We have marked-up necessary fragment for deciphering *cognitive unit*

<cmu n=1> firesound associated with the matterlightblooming phenomenon</cmu n=1>

<cmu n=1> вогнезвук. пов'язаний із явищем спалаху світлоречовини </cmu n=1>

<cmu n=1> Feuerknall, der mit dem Phänomen der Materienlichtblüte einherging</cmu n=1>. </s></cmu>

Taken together, these elaborations give the idea that constructing meaning model of translation is promising. It is the practical illustration of computational psycholinguistics component, which can be further embedded in a number of schemes and codes for the sake of machine learning. This human-machine compromise is a recourse of mapping processor sources into predictions and preferences of of cognitive load.

The method relates not only to speed up or predict syntactic computations, but also considers efficient ambiguity management, especially when independent components are marked-up and composed in a decomposable architecture.

A thoughtful combination of computational, linguistic and psychological considerations allow us to propose Meaning Translation Model of Fiction that focuses on the essence of actualized meaning. The benefit of this model is that it can store the context and a cognitive environment along with solely statistical representation. With this result at our disposal, we shift to cognitive hermeneutics analysis

of philological nature, the one would become the subject matter of our forthcoming publications.

Acknowledgements

The author of the article expresses appreciation to *Sketch Engine* (a corpus manager and text analysis software, <https://app.sketchengine.eu>) for securing gratis group account.

Conclusions. The study unzips a new prospect of meaning-centered research. Voiced here is the idea of deciphering original meaning as based on its translated dominants and word n-grams; touched upon are the basic and derived semantic categories.

Semantic and corpus-driven generated data allow juxtaposing translated prevailing entities and modeling cognitive, conventional and compositional modes of meaning of the original. Experimental, this algorithm would best fit within non-essentialist and deconstructed approaches to translation. If further elaborated, MTM is considered perspective for unit of meaning detection; also, compilation of parallel translation corpus of Lincoln in the Bardo text document.

REFERENCES:

1. A Companion to the Philosophy of Language / ed. by B. Hale, C. Wright, A. Miller. Second edition, Wiley Blackwell, 2017.
2. Alonso E., Nunes Vieira L. The Translator's Amanuensis 2020. *The Journal of Specialised Translation*. 2017. № 28. P. 345–361.
3. Carl M., Schaeffer M. Models of the Translation Process. *The Handbook of Translation and Cognition* / eds. J. Schwieter, A. Ferreira. John Wiley & Sons, Inc., 2017. P. 56–57.
4. Cognitive Analysis and Statistical Methods for Advanced Computer Aided Translation: веб-сайт. URL: <https://www.casmat.eu/> (дата звернення: 23.03.2023).
5. Cognitive semantics : meaning and cognition / ed. by J. Allwood, P. Gärdenfors. Amsterdam ; Philadelphia : John Benjamins, 1999. 216 p.
6. Crocker M. Computational psycholinguistics. *The handbook of computational linguistics and natural language processing* / ed. by A. Clark, C. Fox, S. Lappin. Hoboken, NJ: Wiley-Blackwell, 2013. P. 482–512.
7. Kaplan R. Computational Psycholinguistics. *Computational Linguistics*. 2019. № 45 (4). P. 607–626.
8. Khomytska I., Teslyuk V., Kryvinska N., Bazylevych I. Software-Based Approach Towards Automated Authorship Acknowledgement – Chi-Square Test on One Consonant Group. *Electronics*. 2020. №7:1138.
9. Knowles R., Sanchez-Torron M., Koehn, P. A user study of neural interactive translation prediction. *Machine Translation*. 2019. № 33. P. 135–154.
10. Larson M. Meaning-based Translation: A Guide to Cross-Language Equivalence. University Press of America, 1998. 149 p.
11. Levchenko O., Tyshchenko O., Dilai M. Modeling of the Associative Verbal Network and its Cognitive Interpretation (the Conceptual Domain ЗРАДА 'BETRAYAL'). *International Scientific and Technical Conference on Computer Sciences and Information Technologies*. 2020. Vol. 1. P. 304–307.
12. Matthiessen C. M. I. M. Translation, multilingual text production and cognition viewed in terms of systemic functional linguistics. *The Routledge Handbook of Translation and Cognition*. 2021. Ch. 29. P. 517.
13. Melnychuk, O., Bondarchuk, N., Bekhta, I., Levchenko O., Yesypenko, N., Hrytsiv, N. The Quantitative Parameters in Computer-Assisted Approach: Author's Lexical Choices in the Novels by Martin Amis. *International Scientific and Technical Conference on Computer Sciences and Information Technologies*. 2022, 2022. P. 89–92.
14. O'Brien S. Machine translation and cognition. *The handbook of translation and cognition* / ed. by J. W. Schwieter, A. Ferreira. Hoboken, NJ: Wiley Blackwell, 2017. P. 311–331.
15. Online Translation Platform – MotaWord: веб-сайт. URL: <https://www.motaword.com/> (дата звернення: 23.03.2023).
16. Peris A., Domingo M., Casacuberta F. Interactive neural machine translation. *Computer Speech & Language*, 2017. № 45. P. 201–220.
17. Saunders G. Lincoln im Bardo. Ub. von Frank Heibert, Luchterhand Literaturverlag in der Verlagsgruppe Random House GmbH, 2018. 448 s.
18. Saunders G. Lincoln in the Bardo. USA: Random House, 2017. 368 p.
19. Schaeffer M., Carl M. Shared representations and the translation process: A recursive model. In *Describing Cognitive Processes in Translation*. Amsterdam ; Philadelphia : John Benjamins Publishing Company, 2012. P. 21–42.
20. The Most Advanced AI Solution for Enterprise Translation and Localization: веб-сайт. URL: <https://ilt.com/> (дата звернення: 23.03.2023).
21. Weston M. Meaning, Truth and Morality in Translation. In *Translation Today: Trends and Perspectives* / ed. by G. Anderman, M. Rogers. Multilingual Matters Ltd., 2003. 232 p.
22. Yamada M. The impact of Google neural machine translation on post-editing by student translators. *Journal of Specialised Translation*. 2019. № 31(1). P. 87–106.
23. Сондерс Дж. Лінкольн у бардо / пер. з англ. А. Маслюх. Видавництво Старого Лева, 2019. 464 с.