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## ANTCONC CORPUS MANAGER AND ITS POSSIBILITIES FOR KEYWORDS WITH RESILIENCE SEMANTICS SEARCH

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## ABSTRACT

The chapter describes the tools of the AntConc corpus manager and its main seven tabs for working with texts: Concordance, Concordance Plot, File View, Words Clusters, Collocates, Word List, Key Word List. To identify and search for keywords with the resilience semantics as a fixation of the confrontation – resistance – recovery triad, the focus was on the Word List tab, which is a tool for counting and presenting all word usages in the corpus as an ordered list. The developed methodology for working with AntConc, consisting of pre-corpus, corpus and post-corpus work, allowed to identify 5 words-stimuli: Ukrainian криза, крах, стрес, пандемія, травма / English crisis, crash, stress, pandemic, trauma / French la crise, la faillite, le stress, la pandémie, le trauma / German die Krise, der Zusammenbruch, der Stress, die Pandemie, das Trauma / Polish kryzys, upadek, stres, pandemia, uraz, which terminologically form the notion of resilience.

## KEYWORDS

AntConc corpus manager, tab, keywords, semantics, resilience, methodology of work.

## 2.1 ANTCONC CORPUS MANAGER TOOLKIT AND ITS POSSIBILITIES

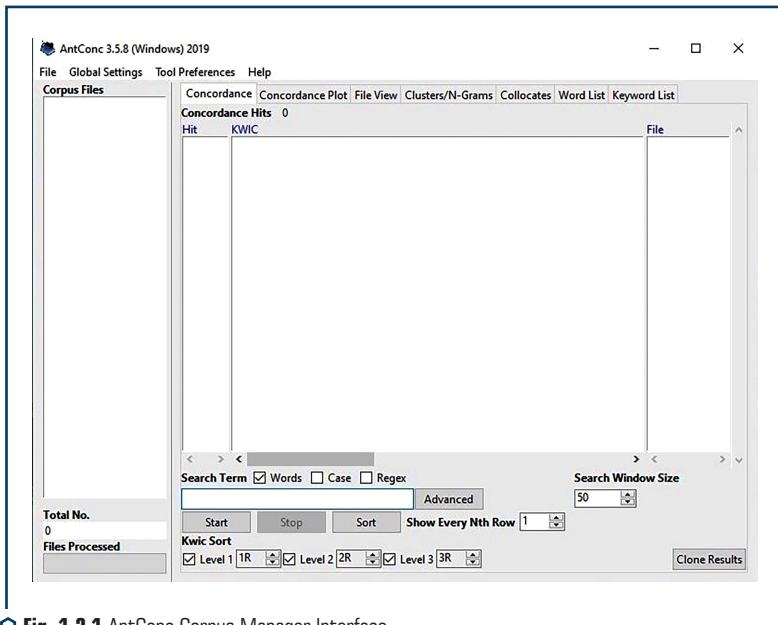
AntConc Corpus Manager (hereinafter – AntConc) is an artificial intelligence programme that is a free and multifunctional tool for statistical research of texts written in different languages belonging to different types and kinds of discourses. AntConc was developed by Professor Anthony, L., Director of the Centre for English in Science and Technology School of Science and Technology Waseda University (Japan) (**Fig. 1.2.1**) [1].

AntConc can be downloaded from the Internet for Mac and Windows. It contains seven tabs corresponding to seven analysis tools that can be updated by clicking on one of them (keys F1 – F7 can also be used).

The main tools are as follows:

1. Concordance is a tool that allows one to find all the contexts of a word or phrase in the text (KWIC – Key Words in Context).
2. Concordance Plot displays the presence of the studied words or phrases in the text in the form of a barcode, which allows one to visually assess how often and in which part of the text the object is found.

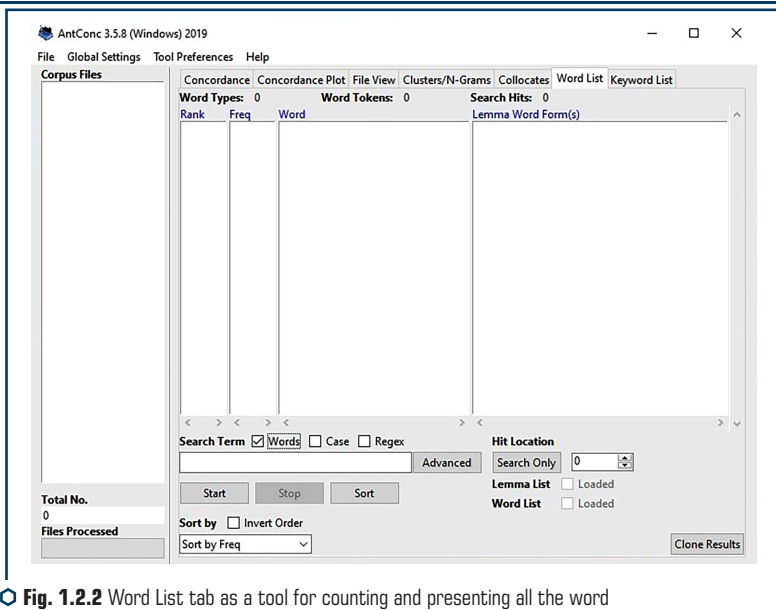
3. File View displays the text of the selected file in its source form.
4. Words Clusters is a tool for selecting a group of words with a given number of elements to the left and right of a given word.
5. Collocates is a kind function that allows one to make an instant statistical analysis of the words to the left and / or right of the searched element.
6. Word List is a tool for counting and presenting all the word usages found in the corpus, in the form of an ordered list.
7. Key Word List is a tool that calculates which words in the corpus are extremely high-frequency or low-frequency compared to the reference body.



**Fig. 1.2.1** AntConc Corpus Manager Interface

In modern linguistics the special attention is paid to the Word List, which helps any user to define the frequency of a keyword represented in a text belonging to a certain type of discourse. It shows the degree of presence of one and the same keyword in different discourses (from scientific to legal, etc.). This tab has the following options (**Fig. 1.2.2**):

- a) rank;
- b) freq (frequency);
- c) word;
- d) lemma word form(s).



**Fig. 1.2.2** Word List tab as a tool for counting and presenting all the word usages found in the corpus

## 2.2 KEYWORDS AS INDICATORS OF FREQUENCY

The notion of "keywords" is represented not only in Linguistic Studies, it is observed in other fields of knowledge: computer science (Shachkova, I. [2]), psychology (Korsakov, I., Korsakova, N. [3]), etc. Studying the "La Methode en Lexicologie. Domaine Francais" (lit. "The Method in Lexicology. French Domain"), it was found out that Matore, J. used two main definitions to describe the notion of "keywords":

- 1) tokens that reflect the main economic and social changes;
- 2) tokens that express the essence of the ideological superstructure of society [4].

Nowadays the notion of "keywords" has the following synonymous designations:

- a) "chronofacts" are "tokens that at a certain period of time [...] become extremely important and denote socially significant concepts, but because of their current semantics they become popular with native speakers" [5];
- b) "current keywords" are "tokens that have become the centre of attention" [2];
- c) "keywords of epoch" are "tokens denoting phenomena and concepts that are in the focus of social attention" [6].

All of them are characterized by the frequency of use in a particular time period, which is one of the most important indexes for determining and giving the "key" status for a certain word.

According to Popova, L. [7], the notion of "keywords" is consistent with the description of "life cycle", i.e. keywords functioning in a particular time period may be actualized or deactualized, which is explained by their development at every stage.

Popova, L. suggests that the idea of the life cycle originates from biology: "all living things go through several stages, namely the beginning of life, development, maturity, extinction, death" [7]. Today this concept is used in various sciences: astronomy (for example, the life cycle of stars), computer science (for example, from the moment of deciding on the need to create an information system to its complete decommissioning), and psychology (for example, in E. Erickson's theory of stages of the life path of the individual (Kolesov, S. [8]), technical sciences, etc. [7].

"Life cycle" as a terminological description is not common in linguistics, although it can be traced in some works of researchers. Polikarpov, A. interprets "life cycle" as "natural, directed changes that are inherent in the form of trends in each language sign" [9]. Orlova, O. studying media concepts, expands the description of "life cycle" to "life cycle of the media concept" and explains it as the "trajectory of its (*media concept* – our clarification) development from the development phase to the phase of decline and levelling, or – in the case of concept stable culturally significant substantive meanings and evaluative characteristics – to strengthen the collective concept as a constant of culture" [10]. At the same time, Shcheglova, Ye. and Prokofyeva, N. use the notion of "stages of existence" in relation to the key words of the current moment [11].

Taking into account the position of Popova, L. [7], which identifies the life cycle of the keyword with the process of semantic-pragmatic evolution of the word, accompanied by the realization of grammatical potential, from the acquisition of popularity, relevance to the stage when the word loses relevance, we formulate working definition of the terminological description "keywords of a specific time period" as words of a certain time period, which characterize a certain type and kind of discourse.

## 2.3 SEMANTICS OF KEYWORDS IN LINGUISTIC STUDIES

Semantics in linguistic and cognitive interpretations is a broad field of interdisciplinary studies that studies tools that can explain the knowledge of any native speaker, including how speakers – representatives of different language cultures record the facts of existence, phenomena, events, situations, and as well as expressing their feelings, intentions, emotions, etc. [12]. If lexical semantics is focused on revealing the meaning of the word, cognitive semantics determines the principles that are typical for the consciousness of the speaker of a particular language, based on which the construction of phrases from compositional combinations of individual tokens takes place [13].

As a rule, a token is understood as a set of lexicosemantic variants (hereinafter – LSV), which are registered in dictionaries as different meanings of the same word. Recently, scholars have been debating whether vocabulary of LSV of a word coincides with the speaker's associations that arise in the process of denoting a certain situation with this word? [14, 15].

To find an answer to this question, scholars have engaged in experimental studies of word semantics and introduced such a term as psycholinguistic meaning, i.e. the orderly unity of all LSVs [16] (both vocabulary and associative) associated with its sound shell in consciousness of native speakers. This is the amount of LSVs / semantic components that actualizes a single word in the minds of native speakers in the unity of all semantic features – more or less bright, nuclear and peripheral [17].

Scientific work of young scholars "Corpus and Experimental Diagnostics of Resilience of Different Language Cultures Representatives and Behavioural Models Development for Adaptation to Crisis Phenomena" (hereinafter – SWYS) is one of such experimental studies that is performed at Kyiv National Linguistic University at the expense of the State Budget Fund (2021–2023) [18].

The aim of the study is to conduct a psycholinguistic experiment with representatives from Ukraine, Great Britain, the French Republic, the Federal Republic of Germany and the Republic of Poland to obtain their associative reactions to selected 5 stimulus words in the corpora of texts belonging to psychological, sociological, etc. discourses. In this case, the set of LSVs (vocabulary, corpus and psycholinguistic) organizes the semantic structure of the word **resilience** in English, French, German, Polish and Ukrainian.

The following 5 words-stimuli with the status of keywords were selected from scientific articles (psychology, sociology, etc.) published in the last 5 years (2017–2021) with the help of the AntConc corpus manager: Ukrainian *криза, крах, стрес, пандемія, травма* / English *crisis, crash, stress, pandemic, trauma* / French *la crise, la faillite, le stress, la pandémie, le trauma* / German *die Krise, der Zusammenbruch, der Stress, die Pandemie, das Trauma* / Polish *kryzys, upadek, stres, pandemia, uraz*. These words are related to the issues of viability.

By the way, the status of keywords is the fixation of at least three characteristics, including:

- 1) the affiliation of keywords to a particular type and kind of discourse;
- 2) the functioning of keywords in a certain period of time;
- 3) keywords that belong to the active or passive dictionary, etc.

It should be noted that the special attention should be focused not on individual words (for example, basic words that are available in any language), but on keywords, i.e. "the words with a relatively high frequency in this author or in this text" [19], because, as Popova says, "they continue to be an important category in the anthropocentric paradigm of scientific knowledge, take into account the emotions, feelings, preferences of the person who speaks" [7]. Therefore, Mustajoki adds that "the actualization of the word is a consequence of the activation in the social consciousness of the realities of objective reality" [20].

## 2.4 RESILIENCE IN THE CONTEXT OF PSYCHO-EMOTIONAL AND PHYSICAL HEALTH

The notion of "resilience" at the present stage of development of scientific knowledge continues to be used together with the notion of "resistance", "viability", etc. which are occasionally used as

synonyms [21], although not such that leads, on the one hand, to their correct perception, and, on the other hand, to their incorrect use and application in relation to certain psychological, psycholinguistic, etc. provisions and phenomena. This is explained by the fact that the English notion of "resilience" is rendered with the help of different Ukrainian equivalents.

Consulting the "English-Ukrainian Dictionary" (compiled by Ball, M.), we note that resilience – "n. 1) elasticity; 2) the ability to quickly restore physical and mental strength; buoyancy; 3) technical impact strength" [22]. Regardless of the exact Ukrainian translation of the notion "resilience", some scholars explain it as:

- 1) the ability of the organizational structure to withstand threats, to recover quickly [23];
- 2) the ability to return to normal productivity levels and as a speed of recovery after failure with a low probability of serious consequences [24];
- 3) the phenomenon of viability of culture uses the definition of resistance to overcome various difficulties [25], etc.

It allows to present resilience in the form of a triangulation model of relationships between resilient elements: **confrontation – resistance – recovery** in relation to threats, crises, difficulties, etc., which, in turn, can be consistent with such concepts as: personality and its psycho-emotional and physical health.

Leontiev, D. and his colleagues believe that the notion of "resilience" is the most common among related concepts (stress, mental / psycho-emotional / psychological trauma, post-traumatic stress disorder, post-traumatic growth, stress-induced growth, power behaviour, strategies or styles of co-rule), which allow to describe the psychological mechanisms of disorders, as well as phenomenology under the pressure of adverse circumstances that can be successfully compensated, but can take chronic form and lead to irreversible involutinal transformations of personality [26]. It can have a negative effect on both a person's psycho-emotional and physical health [27].

Let's try to describe the resilient elements: **confrontation – resistance – recovery** in the context of psycho-emotional and physical health and represent it in **Table 1.2.1**.

● **Table 1.2.1** Characteristics of Resilient Elements in the Context of Psycho-Emotional and Physical Health

Resilient Elements	Psycho-Emotional Health	Physical Health
Confrontation	The ability to counteract something at the level of psyche and emotions	Physical degree of resistance to something
Resistance	The ability to stand firmly, to hold, without falling, without fluctuating at the level of psyche and emotions	The ability to stand physically firmly, to hold, without falling, without swaying
Recovery	To give a preliminary look to the psyche and emotions damaged, spoiled, destroyed; to bring the psyche and emotions to the previous state	To give a preliminary look to the damaged, spoiled, ruined physical health; restore physical health

The analysis of the scientific literature shows that any crisis, negative impact on people, adverse living conditions, etc. first affect a person's psycho-emotional health and then their physical health. This position is evidenced by the work of many scholars. For example, Alexandrova, L. [28], which presents an analysis of the attitude of the individual to forced change, defines *resilience* as psychological stability (flexibility). In the dissertation of Velychkovsky, B. [29] the term "psychological stability" is used for the first time, in which the author analyses different versions of the notion resilience in relation to developmental psychology, age psychology, as well as cognitive-transactional theories of stress.

Referring to the document of the World Federation of Mental Health, *viability* is perceived as mental resilience, as a combination of natural abilities and acquired behavioural skills, the formation of which is possible under the influence of external factors [30]. Another document from this organization lists the "Ten Aspects of Mental Resilience Formation" proposed by the American Psychological Association. It describes ways to form viability and, as the name suggests, viability in this material is translated as mental resistance [30].

## 2.5 METHODOLOGICAL ALGORITHM FOR WORKING WITH ANTCONC CORPUS MANAGER AS AN ARTIFICIAL INTELLIGENCE PROGRAMME FOR SEARCHING THE KEYWORDS WITH THE SEMANTICS OF RESILIENCE

In order to search the keywords with the semantics of resilience in scientific articles on resistance, viability, etc., published in the last 5 years (2017–2021), it is necessary to use AntConc, especially Word List tab. It will help to identify the most frequent keywords that form the terminological field of "resilience", and thus bring closer to the understanding of its semantics.

We are to focus on the methodology of corpus diagnostics.

Corpus diagnostics of resilience of different language cultures representatives is aimed at using AntConc, the methodological algorithm of which involves the implementation of three successive stages: if pre-corpus work deals with selection of texts belonging to scientific discourse on the issues of resistance, viability, etc., corpus work – work of AntConc tools: from downloading texts to the programme to their automatic processing by the programme, then post-corpus work – selection of keywords and their further interpretation.

The first stage deals with the pre-corpus work, which consists of three successive stages: firstly, it is necessary to determine the final result – selection of Ukrainian, English, French, German and Polish keywords with semantics of resilience from texts of scientific discourses, secondly, one should process lexicographic sources and scientific literature that provide approaches to understanding the issue of viability as a form of activity and adaptability of systems, including the notion of "resilience" and using Google search select texts in .pdf format, during the next, third step, one is to convert the selected texts from .pdf to .doc format (paragraphs, indents, fonts, etc.) and save in .txt using Unicode 8 encoding.

The second stage is the corpus work, which consists of three successive stages that should be performed with Ukrainian, English, French, German and Polish scientific texts.

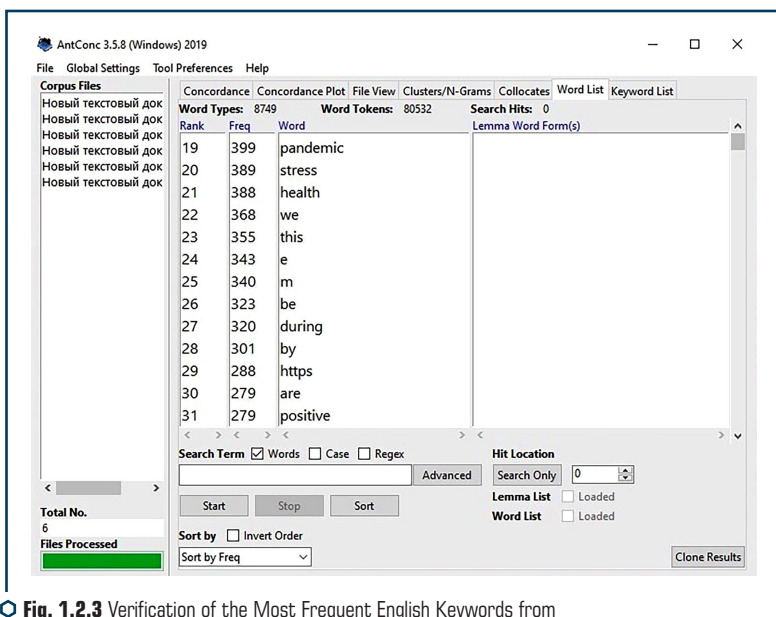
During the first step it is necessary to run AntConc and load texts to it according to the following sequence of actions: File – Open File(s)... – one should choose texts. All texts appear on the left side of AntConc. In the second step, one should go to the Word List tab and press Start. In the window of this tab, all words and phrases will be represented by two options:

1. Rank is the ordinal number of the word and phrase.
2. Freq / Frequency is the frequency of use of words and phrases.

In the third step, we choose keywords with the semantics of resilience.

**Fig. 1.2.3** shows an example of verification of the most frequent English keywords from the texts of scientific discourses, which is displayed in the Word List tab of AntConc.

The third stage corresponds to the post-corpus work, which consists of three successive stages: during the first step it was determined that the most frequent keywords are as follows: Ukrainian *криза, крах, стрес, пандемія, травма* / English *crisis, crash, stress, pandemic, trauma* / French *la crise, la faillite, le stress, la pandémie, le trauma* / German *die Krise, der Zusammenbruch, der Stress, die Pandemie, das Trauma* / Polish *kryzys, upadek, stres, pandemia, uraz*; the second step helped to provide definitions for each keyword from different lexicographical sources, as well as to select synonyms for them, but in the third stage it was necessary to interpret them.



**Fig. 1.2.3** Verification of the Most Frequent English Keywords from Texts of Scientific Discourses in Word List tab of AntConc



## CONCLUSIONS

It should be noted that in order to achieve of the aim and to solve the main objectives set in scientific work of young scholars "Corpus and Experimental Diagnostics of Resilience of Different Language Cultures Representatives and Behavioural Models Development for Adaptation to Crisis Phenomena" AntConc corpus manager was used. It helped to identify and select keywords with the resilience semantics.

The selection of keywords took place in accordance with the developed methodological algorithm, which consists of three successive stages: if pre-corpus work deals with selection of texts belonging to scientific discourse on the issues of resistance, viability, etc., corpus work – work of AntConc tools: from downloading texts to the programme to their automatic processing by the programme, then post-corpus work – selection of keywords and their further interpretation.

As a result, the following 5 words-stimuli with the status of keywords were selected from scientific articles (psychology, sociology, etc.) published in the last 5 years (2017–2021): Ukrainian *криза, крах, стрес, пандемія, травма* / English *crisis, crash, stress, pandemic, trauma* / French *la crise, la faillite, le stress, la pandémie, le trauma* / German *die Krise, der Zusammenbruch, der Stress, die Pandemie, das Trauma* / Polish *kryzys, upadek, stres, pandemia, urazz*, which terminologically form the notion of resilience.

**The prospects for further research** deal with, both performing experimental diagnostics of resilience of different language cultures representatives and based on the results of corpus and experimental diagnostics to develop behavioural models of adaptation to crisis phenomena.

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