

## CONCEPTUAL DELIMITATIONS REGARDING THE TERMINOLOGY USED IN THE METHODS OF INVESTIGATING THE FUTURE PAPER TITLE

### Abstract

The authors propose the conceptual delimitation regarding the terminology used in the methods of investigating the future on the basis of a set of 7 variables. To this end, the hierarchical clusters' method will be used. The outcome of the research will be presented under the form of some clusters of terms with homogeneous meanings, almost synonyms, that would constitute the conceptual delimitation of the terms.

**Keywords:** conceptual delimitation, anticipated future, cluster method.

### 1. Introduction

Anticipating the future has interested mankind since the earliest times regardless whether this phenomenon had at its foundations scientific methods or parapsychological capacities. As a proof of the ongoing preoccupations in investigating the future, the terminology used in the specialty literature is abundant and diverse.

The authors of this article will analyze the meaning of the main terms available in the Anglo Saxon literature which are used to define the process of investigating the future: prognosis, previsions, prediction, foreknowledge, foresight, foretell, forecast as it can be ascertained that the English dictionaries tend to consider these terms synonyms.

The authors' opinion, that is also the working hypothesis of the present article, is that the use of these terms should not occur randomly, each of them having its own well-delimited conceptual field and peculiar meanings according to the context where they are used.

In order to be able to semantically analyze the above-presented terms, with as much accuracy as possible, a neuter term will be used representing the outcome of the process of investigation/anticipated knowledge of the future (future investigation). We will name this term viitor anticipat (anticipated future).

### 2. Epistemologic analysis

From the very beginning, we should mention that the seven terms, according to their origin, can be classified in two groups. These groups can be easily recognised by the prefix they accept when forming compound words: pre- /pro- for the Latin origin words and for(e)- for the English words.

The two groups are:

1. The group of the Latin origin terms: pro + gnosis, pre + vision, pre + diction.
2. The group of the English origin terms: fore + knowledge, fore + sight, fore + tell, fore + cast.

Taking into account their different origin, some of these terms may be synonymous.

Most of the terms analysed rely on three capacities: to know, to tell and to see, by means of which predictions can be done:

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	<b>Pre- /Pro-</b>	<b>Fore-</b>
<b>To know</b>	<i>Prognosis</i>	<i>Foreknowledge</i>
<b>To see</b>	<i>Prevision</i>	<i>Foresight</i>
<b>To tell</b>	<i>Prediction</i>	<i>Foretell</i>
-	-	<i>Forecast</i>

### 3. Research methodology

The authors of the article propose a system with 7 variables, each having a set of three values in order to facilitate a slighter conceptual delimitation, by means of statistical methods, of the terms under analysis:

<b>Name of the variable</b>	<b>Values of the variable</b>
V1. Probability of occurrence of the anticipated future	- 1 – it cannot be estimated; - 2 - probable; - 3 – certain.
V2. Degree of complexity of the anticipated future	- 1 - punctual (ex.: only the main character of the photo is focused); - 2 – medium complexity (ex.: both the main character of the photo is focused and what happens in his immediate vicinity); - 3 – increased complexity (ex.: both the main character of the photo is focused and the whole context where he lives).
V3. Number of accepted variants in the process of anticipating the future	- 1 – one variant; - 2 – confidence interval; - 3 – several variants without defining their limits.
V4. Use of past data when anticipating the future	- 1 – no. - 2 – yes, to a small extent; - 3 – yes, to a great extent.
V5. Use of quantitative methods when anticipating the future	- 1 – no. - 2 – yes, to a small extent; - 3 – yes, to a great extent.
V6. Use of qualitative methods when anticipating the future	- 1 - no; - 2- yes, to a small extent; - 3 – yes, to a great extent.
V7. Use of extra-sensory capacities	- 1 – never; - 2 – sometimes; - 3 – always.

Each term may have different significances according to the context where it occurs. In each of these cases the meaning of each term may be defined by means of a synonym.

In the undertaken analysis we shall take into consideration two meanings of the terms, the most frequently used ones. They will be explained by two synonyms to which we shall associate figures from 1 to 2 that appear between brackets: (1) or (2).

For each of the two situations we shall attribute a set of values to the seven variables defined by the authors of this article.

Finally, we shall analyze 14 terms, each of them having a single meaning, defined by means of the associated synonym, for which we shall make a hierarchical cluster analysis.

For each term, apart from the seven variables, we shall also specify the explanation of the term on the basis of the Anglo-Saxon dictionaries, the first two synonyms accepted in the English language for the term under analysis and the period of time when the term was firstly used in the Anglo-Saxon literature.

### 4. Conceptual definition of the terms

1. **Prognosis** (noun) appeared in the Anglo-Saxon literature during 1645–1655.

Explanation of the word synthesised on the basis of the Anglo-Saxon dictionaries = foreknowledge; the capacity to know beforehand, intuition (prevision based on a set of information analysed according to the experience). (Old Latin and Greek origin).

The first two synonyms accepted in the Anglo-Saxon literature: prospect (1); forecast (2).

V1. Probability of occurrence of the anticipated future: 2 (1); 2 (2);

V2. Degree of complexity of the anticipated future: 1 (1); 1 (2);

V3. Number of accepted variants in the process of anticipating the future: 1 (1); 1 (2);

V4. Use of past data when anticipating the future 3 (1); 3 (2);

V5. Use of quantitative methods when anticipating the future: 2 (1); 3 (2);

V6. Use of qualitative methods when anticipating the future: 3 (1); 2 (2);

V7. Use of extra-sensory capacities: 1 (1), 1 (2).

The term is frequently used in medicine and occasionally in weather forecasting, implying an investigation of the future (for instance the weather) more from the point of view of the final outcome that will be reached than from the point of view of an intermediate evolution. In English there is also the equivalent forecast, the latter being widely used in meteorology. This happened mainly because the anticipation of the future in meteorology had passed through a change in the nature of the used methods from the qualitative approach area, based on signs associated with certain phenomena to the quantitative approach, where the evolution of the meteorological phenomena was analysed and modelled with the help of the quantitative methods. Due to this peculiarity, the most appropriate English term for the description of the new process of anticipating the future is not that of prognosis anymore but, rather that of forecast. In fact, in Romanian language the term meteorological forecast (*prognoză meteorologică*) is used and not that of meteorological prognosis (*pronostic meteorologic*).

We recommend the use in Romanian language, as equivalent of the term prognosis, the term pronostic and not the term prognoză as we would be tempted to do. The exception to this recommendation is met in the area of meteorology where, due to the change of the anticipation of the future from qualitative methods into quantitative methods, it is better to use the term prognoză meteo and not that of pronostic meteo.

Example: The countryside people make a prognosis that it will rain when the pig walks with a straw in its mouth while the weatherman, analyzing the evolution of the atmospheric fronts through statistical methods makes a forecast.

2. **Prediction** (noun) appeared in the Anglo-Saxon literature during 1555–1565

Explanation of the word synthesised on the basis of the Anglo-Saxon dictionaries = foretelling; statement which anticipates the future (Latin origin); judgment about the future, the anticipation of the future, prophecy; statement made in advance based on scientific observations, experiences or evidence; part of the statistical inference, field known under the name prediction through inference (predictive inference).

The first two synonyms accepted in the Anglo-Saxon literature: prophecy (1); forecast (2);

V1. Probability of occurrence of the anticipated future: 3 (1); 2 (2);

V2. Degree of complexity of the anticipated future: 3 (1); 1 (2);

V3. Number of accepted variants in the process of anticipating the future: 1 (1); 2 (2);

V4. Use of past data when anticipating the future: 1 (1); 3 (2);

V5. Use of quantitative methods when anticipating the future: 1 (1); 3 (2);

V6. Use of qualitative methods when anticipating the future: 3 (1); 2 (2);

V7. Use of extra-sensory capacities: 3 (1); 1 (2).

In Romanian language, the term can be translated by expected/anticipated result whose finality can be anticipated, a predictable result. We say that those phenomena for which it can be applied an inference based on natural laws can be anticipated. There are few situations when this term can be translated by *previziune* (prevision). Phenomena are predictive when a statistical inference can be applied to them having probabilistic laws.

Prediction most often implies the exact anticipation of the future by means of scientific methods (predict an eclipse).

A prediction is a statement or an assertion that a special event will take place in the future more certainly than in the case of a forecast [UNIDO, 2005].

3. **Prevision** (noun) appeared in the Anglo-Saxon literature during 1605–1615.

Explanation of the word synthesised on the basis of the Anglo-Saxon dictionaries = foreseeing; anticipation of the facts through visions (Latin origin); to see ahead, fore-

knowledge, pre-science; a prophecy or a vision or an anticipative perception; the power to see the future, vision, revelation about the future; caution.

The first two synonyms accepted in the Anglo-Saxon literature: prophecy (a prophetic vision) (1), foresight (the power to foresee) (2);

V1. Probability of occurrence of the anticipated future: 3 (1), 2 (2);

V2. Degree of complexity of the anticipated future: 3(1), 2 (2);

V3. Number of accepted variants in the process of anticipating the future: 1 (1), 1 (2);

V4. Use of past data when anticipating the future: 1 (1), 1 (2);

V5. Use of quantitative methods when anticipating the future: 1 (1), 1 (2);

V6. Use of qualitative methods when anticipating the future: 3 (1), 2 (2);

V7. Use of extra-sensory capacities: 3 (1), 1 (2).

The most appropriate translation in Romanian language of the term prevision is that of *prevedere, profeție, viziune, înainte vedere*.

Prevision is a personal experience. A prevision that we share with other people becomes a foretelling.

4. **Foresight** (noun) appeared in the Anglo-Saxon literature during 1250 – 1300.

Explanation of the word synthesised on the basis of the Anglo-Saxon dictionaries = vision about the future (Old English origin); cautious, prudent; pre-science, visionary, anticipation.

The first two synonyms accepted in the Anglo-Saxon literature: anticipation (1), foreknowledge (2).

V1. Probability of occurrence of the anticipated future: 1 (1), 2 (2);

V2. Degree of complexity of the anticipated future: 2 (1), 3 (2);

V3. Number of accepted variants in the process of anticipating the future: 3 (1), 3 (2);

V4. Use of past data when anticipating the future: 3 (1), 2 (2);

V5. Use of quantitative methods when anticipating the future: 2 (1), 2 (2);

V6. Use of qualitative methods when anticipating the future: 2 (1), 2 (2);

V7. Use of extra-sensory capacities: 2 (1), 2 (2).

A more detailed definition of the term foresight is: the capacity to analyze present data and to project them into the future, followed by the choice of the desired future variant and by the attempt to make the present reach the level of the projected future [Amsteus, 2008, 53-66].

Foresight represents a process of projecting the future on a long and very long term horizon, using the present data and the analysis of its previous evolutions in a variety of possible variants followed by the process of implementing the chosen future. The foresight process does not aim at calculating a probability of occurrence of the future under non-controllable conditions but on the contrary, it tries to reach a favourable future through the exertion of some control over it. The tools used when anticipating the future through foresight are complex and varied, providing non-probabilistic variants of possible futures in all their complexity. The complexity of the projected future enables the use and translation of the term foresight by *vedere în viitor* (seeing in the future). [UNIDO, 2005]

The foresight process does not exclude the forecast process, that of projecting the future or of strategically planning it; most of the times these two processes can be combined to obtain a more complex and accurate anticipation of the future. [UNIDO, 2005].

Anticipating the future by means of foresight processes is rather a fictional issue combined with quantitative and qualitative techniques of investigating the future.

The most appropriate translation in Romanian language of the term foresight is that of *explorare a viitorului, proiectarea viitorului* (exploring the future, projecting the future).

5. **Foretell** (verb) appeared in the Anglo-Saxon literature during 1250 – 1300.

Explanation of the word synthesised on the basis of the Anglo-Saxon dictionaries = description/narration of the future (Old English origin); the verbal anticipation of the future often implies the existence of occult or mysterious powers; anticipating the future by means of “signs”

The most appropriate translation in Romanian language of the term foretell is *clarviziune, prevestire, profetie, prognosticare*.

The first two synonyms accepted in the Anglo-Saxon literature: prognosticate (1); prophesy (2).

V1. Probability of occurrence of the anticipated future: 2 (1), 3 (2);

V2. Degree of complexity of the anticipated future: 1 (1), 2 (2);

V3. Number of accepted variants in the process of anticipating the future: 1 (1), 1 (2);

V4. Use of past data when anticipating the future: 2 (1), 1 (2);

V5. Use of quantitative methods when anticipating the future: 1 (1), 1 (2);

V6. Use of qualitative methods when anticipating the future: 3 (1), 2 (2);

V7. Use of extra-sensory capacities: 2 (1), 3 (2);

Foretell, most often implies seeing the future by means of occult or unexplained powers (a sorcerer foretold their evil end);

6. **Foreknowledge** (noun) appeared in the Anglo-Saxon literature during 1525 – 1535.

Explanation of the word synthesised on the basis of the Anglo-Saxon dictionaries = to know something before its existence or occurrence; premonition, presentiment (Old English origin).

The first two synonyms accepted in the Anglo-Saxon literature: presentiment (1), premonition (2);

V1. Probability of occurrence of the anticipated future: 2 (1), 2 (2);

V2. Degree of complexity of the anticipated future: 1 (1), 2 (2);

V3. Number of accepted variants in the process of anticipating the future: 1 (1), 1 (2);

V4. Use of past data when anticipating the future: 1 (1), 1 (2);

V5. Use of quantitative methods when anticipating the future: 1 (1), 1 (2);

V6. Use of qualitative methods when anticipating the future: 2 (1), 1 (2);

V7. Use of extra-sensory capacities: 2 (1), 3 (2).

The most appropriate translation in Romanian language of the term foreknowledge is that of *clarviziune, premoniție, precunoaștere*.

7. **Forecast** (noun, verb) appeared in the Anglo-Saxon literature during 1350-1400.

Explanation of the word synthesised on the basis of the Anglo-Saxon dictionaries = anticipating the future; a probable judgment; an anticipation of the future based on signs; to anticipate the future based on calculi and estimations; to foresee something before it happens, to anticipate.

*The first two synonyms accepted in the Anglo-Saxon literature: prognosis (1), prediction (2);*

V1. Probability of occurrence of the anticipated future: 2 (1), 2 (2);

V2. Degree of complexity of the anticipated future: 1 (1), 1 (2);

V3. Number of accepted variants in the process of anticipating the future: 1 (1), 2 (2);

V4. Use of past data when anticipating the future: 3 (1), 2 (2);

V5. Use of quantitative methods when anticipating the future: 2 (1), 2 (2);

V6. Use of qualitative methods when anticipating the future: 3 (1), 2 (2);

V7. Use of extra-sensory capacities: 1 (1), 1 (2).

The most recommended translation in Romanian language of the term forecast is that of *prognoză, previziune*.

Forecast is probably the most comprehensive and the newest term of those which describe the anticipation of the future. Its peculiarity comes from its reference to all the manners of anticipating the future, excluding the anticipation of the future using extra-sensory capacities: far-sightedness, prophecies, premonitions, etc.

In the table below we shall present the centralized situation of the variables 2-10 for each of the terms used:

Forecast is often expressed through probabilities and potentialities rather than through certainties (forecasting the week's weather).

The outcomes of a forecast process almost always rely on probabilistic calculi or on experiences that are based on empirical observations, associated with some phenomenological manifestations.

Forecasting is the process of estimation in uncertain situations. Prediction is a similar term, but with a much larger coverage area. Both terms may refer to the transversal or longitudinal estimation of time series. Their use may differ according to their application areas [...] the terms forecast and forecasting are sometimes used only for the longitudinal estimation of time series, while the term prediction is used for the transversal estimation of a time series [...]. The risk and the uncertainty are essential for forecasting and prediction. [<http://en.wikipedia.org/wiki/>]

### **5. Specifications concerning the chronology of occurrence and the morphological analysis of the terms**

We can notice that from the point of view of terms' occurrence in the English language, the Latin origin terms are introduced later with time differences of about 250 years, between 1555-1655, the exception being the term foreknowledge that appeared almost in the same period with the Latin origin terms, between 1525-1535.

It should be remarked that among the 7 words there are two terms that stand apart from the general tendencies: foretell and forecast. Foretell is a verb while the other terms are nouns and forecast is either a verb or a noun, fact that could also suggest the semantic richness of this term.

### **6. Hierarchical cluster analysis**

The classification of the terms using the 7 variables on the basis of the Hierarchical Cluster Analysis through the Average Linkage (Between Groups) method is the following:

#### **Cluster 1**

1. Forecast 1 = prognosis
2. Forecast 2 = prediction
3. Prediction 2 = forecast
4. Prognosis 1 = prospect
5. Prognosis 2 = forecast

#### **Cluster 2**

1. Foreknowledge 1 = presentiment
2. Foretell 1 = prognostication
3. Prevision 2 = foresight

#### **Cluster 3**

1. Foreknowledge 2 = premonition
2. Foretell 2 = prophecy
3. Prediction 1 = prophecy
4. Prevision 1 = prophecy

#### **Cluster 4**

1. Foresight1 = anticipation
2. Foresight2 = foreknowledge

### **7. Cluster description:**

1. *Cluster 1* contains the terms forecast and prognosis for both synonyms and the term prediction 2 with the meaning forecast, prediction, prospect or prognosis.

It is homogeneous from the point of view of the variables:

- V1. The probability with which the anticipated future will happen cannot be estimated (1);
- V2. The future is anticipated from a punctual perspective (1);
- V7. Sometimes, the extra-sensory capacities may be used when anticipating the future (2).

2. *Cluster 2* contains the terms foreknowledge 1, foretell 1 and prevision 2 with the meaning presentiment, prognostication or foresight.

It is homogeneous from the point of view of the variables:

V1. The anticipated future occurs with a certain probability (2);

V3. The number of the accepted variants in the process of anticipating the future is unique (1);

V5. Quantitative methods are not used in the anticipation of the future (1).

3. *Cluster 3* may be considered the prophecies and premonitions' cluster and contains the terms foreknowledge 2, foretell 2, prediction 1 and prevision 1.

It is homogeneous from the point of view of the variables:

V3. In the process of future anticipation a single future variant is accepted (1);

V4. For the anticipation of the future, past data are not used (1);

V5. Quantitative methods are not used when anticipating the future (1);

V7. When anticipating the future, the extra-sensory capacities are always used (3).

4. *Cluster 4* may be also named the foresight cluster as it only contains the terms foresight 1 and 2. The meaning of the words from this cluster is that of anticipation and foreknowledge.

It is homogeneous from the point of view of the variables:

V3. In the process of future anticipation, several future variants are accepted (3);

V5. Quantitative methods are used to a small extent when anticipating the future (2);

V6. Qualitative methods are used to a small extent when anticipating the future (2);

V7. Sometimes, in the process of future anticipation, the extra-sensory capacities may also be used (2).

## 5. Conclusions

It can be noticed that the cluster distribution provides a homogeneous hierarchy of the analyzed terms and of the synonyms associated with them.

In the first cluster, the terms forecast, prognosis and prediction are grouped, belonging to the same conceptual area and having the meaning: forecast, prediction, prospect or prognosis.

What characterizes all the terms from this cluster is the fact that the future anticipation cannot be estimated, it is punctual and, sometimes, in the process of anticipation, extra-sensory capacities may be used.

In the second cluster, the terms foreknowledge, foretell and prevision are grouped, belonging to the same conceptual area and having the meaning presentiment, prognostication or foresight.

What characterizes all the terms from this cluster is the fact that the future anticipation is uncertain and happens with a certain probability, the anticipated future is punctual and the quantitative methods are not used in the process of future anticipation.

In the third cluster, the terms foreknowledge, foretell, prediction and prevision belonging to the same conceptual area and having the meaning premonition or prophecy.

What characterizes all the terms from this cluster is the fact that the future anticipation is punctual, does not use past data, does not use quantitative methods and always uses extra-sensory capacities.

In the fourth cluster there is a single term, foresight, with the meaning anticipation and foreknowledge.

What characterizes the term from this cluster is that the future anticipation is accomplished in several variants and all the methods of anticipating the future are equally used: quantitative methods, qualitative methods and parapsychologic methods.

As a conclusion, each cluster includes the terms that have close conceptual areas. Among the terms belonging to the same cluster slight conceptual differences may exist, which allow in some situations, the use of the terms from the same cluster, with the specified meanings, as

synonyms. Among the terms belonging to different clusters, there are strong conceptual areas which do not allow the use of these terms, with the analyzed meanings, as synonyms.

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