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РАЗРАБОТКА СЛОВАРЯ ДЛЯ ИНФОРМАЦИОННОЙ СИСТЕМЫ, АВТОМАТИЗИРОВАНО ОПРЕДЕЛЯЮЩЕЙ МЕТАПРОГРАММНЫЙ ПРОФИЛЬ ЛИЧНОСТИ

Аннотация

В статье описывается процесс разработки словаря, позволяющего автоматизировано определять метапрограммный профиль личности. Анализ показал, что ориентация личности в соответствии с метапрограммой проявляется не только в содержании речи, но и в морфологических характеристиках слова, что делает невозможным использование уже существующих словарей. Также при формировании словаря необходимо учитывать возможность наличия в тексте ответов на вопросы сокращений, аббревиатур, жаргонных слов. В работе подробно описан и сопровожден примерами процесс составления словаря.

Ключевые слова: словарь, метапрограмма, метапрограммный профиль личности, автоматизация, обработка текста.

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DEVELOPMENT OF A DICTIONARY FOR INFORMATION SYSTEM OF AUTOMATED FIGURING OUT PERSON'S META-PROGRAMS PROFILE

Abstract

The article describes the process of formation of a dictionary for automated figuring out person's meta-programs profile. Analysis revealed that personal orientation in accordance with the meta-program is manifested not only in the content of speech, but also in morphological characteristics of a word, what makes it practically impossible to use already existing dictionaries. During the development of a dictionary it is also important to take into consideration the presence of shorten words, abbreviations and slang words in the text. In this paper, the process of formation of a dictionary is described in detail and is accompanied by examples.

Keywords: a dictionary, meta-program, person's meta-programs profile, automation, text processing.

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When developing an information system that allows to form meta-program profile of a person in order to select employees with current personal qualities, we faced with a problem of necessity of a certain dictionary for the system. This article describes the particularity of formation of a dictionary for such a system.

A great number of researches are devoted to the problem of development of dictionaries for information systems [1]; [2]; [3]; [4]. Concurrently, the formation of the dictionary for a certain task is definitely current problem as each case has its own specific differences. The article is devoted to the problem of formation of a dictionary for automated text processing aimed at figuring out person's meta-programs.

Many scientists consider it effective to use methods connected with figuring out person's meta-programs or personal qualities in the process of evaluation employees [5]; [6]; [7]; [10] because that helps to determinate professional qualities and potential of a person.

Speaking about meta-programs, authors usually bear in mind the ways of how human is thinking that determines his behaviour. It should be mentioned, that meta-programs are used unconsciously in human speech and they are almost impossible to "simulate". Meta-programs describe installation or orientation that a person elects in different contexts and situations, being, in fact, the filters that he uses for perception, selection, capturing and processing of incentives surrounding him [8], [9].

Meta-program represents the opposing approaches to the solution of a particular problem. Generally, there are two opposite approaches to the solution of the problem. That's why most of meta-programs are considered in pairs as two opposite meanings, for example, active – reflective, external reference — internal reference, focus on process – focus on the result. But there are exceptions, such as Representational

System Sort, represented at once by four meanings: visual system, audial system, kinesthetic system and auditory-digital system [9].

Written interview is one of the most effective way of determining meta-programs. During this interview, the respondent is given a set of questions related to different spheres of his life (sometimes it can be only one sphere, for example, studies or job) and he should give clear and reasoned answers. The necessity of clear answers is due to the fact that "yes/no" format of answers does not give complete information. Further, each answer is analyzed question by question and then is given its full interpretation.

Thus, the result of processing is meta-program profile or so-called meta-program card that represents characteristic for a person set of values of several meta-programs. The use of this method allows to reach a large audience in a limited period of time, to return to the results in case of doubt and does not depend on the qualification of the interviewer. However, it should be mentioned that implementation of the method described above is related to the following problems: the need for a specialist qualified in psycholinguistics and data processing; plenty of time needed to process the text. These problems can be solved easily by organizing an automated response processing.

There are several approaches to automated processing of meta-programs results: text processing using existing dictionaries or development of a dictionary and successive comparison of words and phrases from responses of respondents.

It should be noticed that it is practically impossible to use existing dictionaries for automated figuring out meta-programs profile, because personal orientation in accordance with the meta-program is manifested not only in the content of speech, but also in morphological characteristics of a word, such as verb form, inclination, tense, face and others.

For example, while figuring out "Somatic Response Style" metaprogram values if a respondent uses in his answers the first person singular and plural verbs that means the preponderance of active personality orientation. Therefore, if a respondent uses the third person verbs, infinitive or nouns that means tendency to "reflexivity". In other words, when in a response are used such verbs as "выбираю" (I choose) , "выбираем" (we choose) or "делаю" (I do) , "делаем" (we do), that indicates an "active" type. When are used verbs, such as "выбирают" (they choose), "выбирали" (chose), "выбрать" (to choose), "выбор" (choice) или "делают" (they do), "делать" (to do), "дело" (doing), "дела" (doings), that is a "reflexive" type. Also, it is necessary to take into consideration different collocations of the word.

For another meta-program "Frame of Reference or Authority Sort" [9] is important to consider what nouns are used with current verbs, as it indicates the point of view (his own or another's) on which the person relies in the formation, evaluation of judgment and in decision making.

If a respondent in his answer uses such collocations as "потому что учитель так говорит" (because a teacher says that), "мама хвалит меня" (my mother praises me), "друзья всегда хотят со мной работать" (my friends always want to work with me), that is he refers to other's opinion, he has "other-referent" type of the frame of reference. A respondent, who bases on his own opinion and uses a pronoun "I" and collocations like "я так считаю" (I think so), "мне кажется" (it seems to me), "я веселый" (I am funny), "я добрый" (I am kind), "я умный" (I am clever) and similar has "self-referent" type of the frame of reference.

An analysis of answers showed that they often contain shorten words, abbreviations, slang words, professionalisms and also grammar mistakes. This greatly obstructs the automated analysis of the text data.

Therefore, it can be argued that when solving the task of automating the processing of the interview results to determine a person's meta-program profile appear a number of problems:

- large amount of data for analysis;
- the absence of a ready-made dictionary that contains maximum number of possible words and phrases;
- dependence of results on the form of words;
- existence of abbreviations, slang and grammar mistakes;
- difficulty of working with text in Russian.

During the development of a dictionary it was necessary to take into consideration the problems listed above and features of automated interview results processing to define meta-program profile of a person.

The dictionary was being developed in the following sequence:

1. The definition of meta-programs that would be included in the dictionary.

2. Description of characteristics of each meta-program, including the description of language markers.

3. Creation of a questionnaire to determine a person's meta-program profile.

4. Development of a preview version of a dictionary.

5. Experimental data collecting and processing.

6. Addition of the dictionary taking into account experimental data.

7. Checking the dictionary.

8. Addition of the dictionary if necessary.

Let's consider each stage in more detail.

On the first stage, several meta-programs were selected. It is necessary to define what meta-programs will be included into metaprograms profile, because there is a lot of different meta-programs. For example, L. Michael Hall и Bob G. Bodenhamer [9] identify fifty-one metaprogram, but in most practical works, connected with recruitment and based on meta-programs [5]; [9]; [10]; [11], not more than 6 metaprograms are used. During the research, we were forming a meta-program profile for specialists in information technologies.

Within the framework of our system and taking into account the specifics of the professional field the following meta-programs were singled out: "Representational System Sort", "Frame of Reference or Authority Sort", "Somatic Response Style" and "Time Experience".

After that, it is necessary to single out characteristics of each meta-program and to describe: verbal reactions by which it is determined; variants of incentives to define the meaning of meta-program; linguistic markers.

Let's consider this stage and others with the example of meta-program called "Somatic Response Style". This meta-program shows our reaction on people and events. That's why, incentives include questions about social aspects of teamwork which allow to check the speed of response to events and the value of planning.

Meta-program has two possible meanings: active and reflexive. Active type is connected with prompt action and rash, in some cases. At the same time, reflexive type involves thoughtfulness and deliberation. Within this type, a person prefers not to do anything until a decision is made. Linguistic markers for both meanings are given above.

As it was noted earlier, to determine meta-program values the respondent should give clear and reasoned answers on several questions. When formulating questions, it is necessary to focus on the accentuated programs and incentives, allowing to determine the value of metaprograms. Also, it is important to take into consideration the specifics of the professional area of respondents. For example, during the research, to define the "Somatic Response Style" we asked the following questions:

1. You have a task to select employees for your department. What steps will you do?

2. You were charged to execute a new project. What will you start with?

3. Your colleague slightly breaks the internal regulations. What would you do?

4. Try to describe your first day at work / at university.

Next, it is required to form a preliminary dictionary based on linguistic markers and expected answers.

In the process of working with the described metaprogram we formed a dictionary that consists of 959 words. The dictionary is separated on two parts. One of them is connected with the words that appropriate the "active" type and another one corresponds to the "reflexive" type. Such a structure makes it possible to organize automated meta-program meanings evaluation effectively.

To check the vocabulary and its completeness the authors carried out an experiment in which twelve respondents answered the questions of the questionnaire. Respondents were senior students of a technical university. The questionnaire was held with the help of the Google Forms service. All answers were collected in a separate file. Later the answers were processed using an information system developed by the authors.

When analyzing the results, the orientation of each respondent was determined. The obtained values were

compared with the results of the check of the same questionnaire carried out by a psychologist. The results coincided generally, inaccuracies were associated with the incompleteness of the dictionary. Therefore, during processing the responses were compared with the dictionary and key words that was not in the dictionary were singled out. This stage allowed to add abbreviations (for example, IS – information system) and professionalisms (for example, to parse) to the dictionary. The obtained data made it possible to supplement the dictionary and that was the next step of its development.

At the next stage a new group of 25 respondents took part in the questionnaire. The answers were processed again by both the information system based on the supplemented dictionary and by a psychologist. The results coincided by 93 percent.

The last stage is needed to supplement the dictionary in case of new questions or frequent repetition of words.

A dictionary was developed during the research. It consists of 2347 words that are grouped by belonging to a particular meta-program. Most of the words are verbs. The pronouns "I", "we", "they" are also analyzed. The results of the research were used to create an information system for the project team formation on the basis of meta-program personality characteristics.

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