

Step 1. Preprocessing of the developed text corpus of 200 Wikipedia articles. The Internet encyclopedia presents a system for categorizing pages in the form of a category tree which shows the representativeness of the corpus in a certain category. For our research, we chose articles of Information Technologies category [3].

Step 2. Identifying certain verbs between a subject and an object of expressions in the texts that are assumed as semantic relations, e.g. Subject ->*include, consist of, contain* ->Object.

Step 3. Extracting semantic relations (unidentified at the previous stage):

1. search the subjects and objects of predicates (verbs that represent semantic relations identified at the previous stage);
2. obtain synonyms for defined subjects and objects (concepts) from WordNet [4];
3. extract semantic relations between the concepts and their synonyms.

Table 1 shows the semantic relations extracted from the designed text corpus.

Table 3. Semantic Relations Extracted from Wikipedia Articles

No	Semantic relation	No	Semantic relation	No	Semantic relation
1	include	11	ability of	21	body of
2	contain	12	aspect of	22	component of
3	consist of	13	member of	23	control of
4	branch of	14	method of	24	mode of
5	class of	15	version of	25	subset of
6	block of	16	part of	26	group of
7	collection of	17	property of	27	quality of
8	description of	18	set of	28	variant of
9	form of	19	type of	29	characteristic of
10	list of	20	use of	30	section of

Consequently, we get the semantic information (the semantic network) of words from the text corpus, i.e. semantic relations between concepts (subjects and objects).

The use of technologies of extraction of semantic relations from texts serves as the basis for developing text analysis tools that operate at a higher level, e.g. text mining. The result of automatic extraction of semantic relations can be used in search engines to extend queries, to construct ontologies, to expand existing and create new thesauri.

References

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4. WordNet, <https://wordnet.princeton.edu>, last accessed 2019/02/07.