

### **Similarity between compound objects and its application in recruitment process**

Similarity (or dissimilarity or distance) calculation is one of the most important elements in data analysis. It allows comparing objects, ranking them or identifying homogenous clusters. The theoretical aspects of similarity calculation are very well known for homogenous structures with quantitative components (e.g. vectors). Some problems can appear during similarity calculations for qualitative data (nominal data or texts). The number of problems rises rapidly for heterogeneous compound objects with irregular structure. It seems that then domain knowledge about the meaning of individual elements of complex structures is required for proper calculations. This type of knowledge is indispensable for choosing the right formula for similarity calculation between elements and for aggregation of partial similarities into the final value. Therefore similarity calculation has rather domain-specific character.

Existing studies show that ontology-based approach belongs to the group of the most popular and the most useful methods for representation of domain knowledge. It allows organizing knowledge in intuitive way, suitable for automatic processing by computers.

In the paper the problem of similarity calculation between compound structures defined by a given ontology is presented. Authors show some methods known from the literature and also present their own propositions in this field.

There are a lot of managerial problems for which similarity calculation plays a crucial role. Generally speaking this type of analysis may be helpful always when the gap between expected pattern and given individuals should be calculated for finding optimal fitting. The problem of competency evaluation during recruitment process is a typical example. Our study focuses on the automatic screening of applications prepared by applicants which is the initial stage of recruitment process.

The research is composed of several steps. Defining ontology for employee's competency is the first one. Next the process of screening of candidate's applications is conducted. During this process the crucial facts are retrieved from applications and transformed into a structural form. In the final stage the similarity between profiles of candidates or between them and expected profiles defined by employers can be calculated.

Exemplary calculations presented in the presentation are based on information retrieved from on-line recruitment services.