

ConWeaver – The Semantic Search Engine

To make corporate knowledge generally available and retrievable it does not suffice to just connect databases and document servers via intranets and portals to one shared surface. Without a logical integration of the data and document stocks and an intelligent search the desired information can only be identified with knowledgeable questions for each data source and time-consuming strategies for comparing the search results. This fact has been recognized by an increasing number of companies. This is where the semantic search technology of ConWeaver starts.

ConWeaver – the solution for the semantic corporate search.

ConWeaver allows an intelligent search in the corporate portal or intranet by integrating data and document stocks by means of a knowledge network, also called semantic network or ontology. ConWeaver uses this knowledge network as a logic search index for all connected data sources. Addressing all data and document stocks with just one question, the user gets a complete, aggregated, and structured answer.

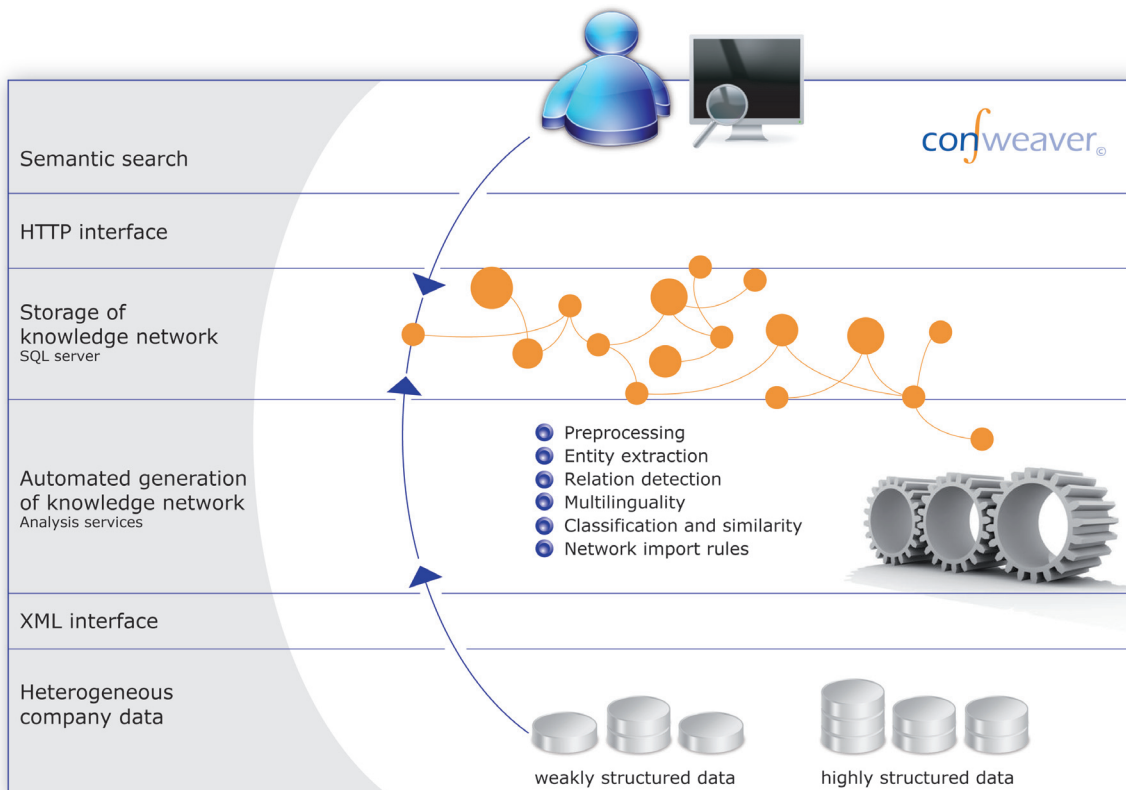
ConWeaver transforms data into knowledge and therefore supports the semantic information process in your company.

ConWeaver includes analysis services for the automated development of knowledge networks and components for the semantic search. Furthermore, the ConWeaver technology allows a rapid prototyping.

Automated Development of Knowledge Networks

To make data and documents accessible in terms of content and to network and integrate the gained knowledge different data models, structured facts, and unstructured text content from the source systems must be projected onto a consistent scheme. For this aim, ConWeaver uses knowledge networks as correlation schemes. These knowledge networks are developed and maintained automatically –this being the innovative achievement of ConWeaver- using methods of artificial intelligence and machine learning.

ConWeaver amalgamates all data and documents of your company without system or media discontinuity in an automated knowledge network and makes their content available for a high-quality corporate search.



Knowledge Networks

Knowledge networks are formalized schemes serving to describe knowledge about business objects like customers, providers, products, or projects. A knowledge network consists of concepts that are connected via semantic relations. They form the so-called schematic level, i.e. the model for the concrete individuals (entities) connected at an individual level and the relations between them. The manual development and maintenance of knowledge networks require, however, much in-depth knowledge and time, making it very cost-intensive.

This is why ConWeaver uses, on the one hand, innovative technologies of statistical and linguistic information extraction and categorization if the data sources consist of texts. On the other hand, best-practice approaches from the data integration are used if we have structured data from relational databases. Also machine translation methods for the development and the maintenance of multilingual knowledge networks and methods for an automatic terminology extraction from Internet sources are used. This complete spectrum of tasks is handled by the analysis services, the semantic middleware of ConWeaver.

Automatic Information Extraction and Indexing

With linguistic and statistical text-mining methods ConWeaver gains information, e.g. about the concepts person, organization, project, or subject, from text documents of different formats. Using methods of categorization and classification ConWeaver relates documents to existing categories of subjects or organizes them in new categories. Methods of automatic translation solve the multilinguality problem, and the inclusion of professional terminologies ensures a terminological access.

Linguistic and Statistical Methods

Using additional linguistic analysis methods the thesaurus from the text mining, categorization, and translation steps is further evaluated. Novel approaches identify logical relations like hypernym or hyponym relations between concepts and realize if concepts like person or concrete individuals like the person Tom Smith are involved. Due to these characteristics a concept can be positioned in a semantic network and automatically included into the knowledge network.

Semantic Search

Concerning the semantic search ConWeaver makes use of the knowledge network as integrated index to search in distributed data stocks. The terminological, colloquial, and language connections of concepts in the knowledge network allow a semantic, multilingual, and formulation-flexible search. Due to the meaning attached to the concepts and relations, on the one hand, and the logical formalization, on the other hand, inferential and language-recognizing searches on the concrete individuals in the knowledge network are possible. So relevant information can even be found if it is implicitly included in documents and data entries.

Making suggestions for context-specific limitations or extensions of the search the „guided search“ especially allows the inclusion of unstructured data sources.

Of course, the intelligent ConWeaver search also includes all characteristics of a linguistically processed full-text search like truncation, basic form reduction, literal error tolerance, or logical operators.

Rapid Prototyping

The graphic interface and the modular character of ConWeaver for the definition of workflows for an automated development of knowledge networks allow a fast implementation of a prototypical search application in the enterprise. It is done on the basis of an exemplary dataset previously defined with the customer. The resulting prototype gives a first impression of the comprehensive possibilities of a semantic corporate search developed with ConWeaver and can be used as a basis for a following project realization.

ConWeaver serves to include structured facts from databases as well as information from unstructured texts, both quantitative and qualitative data.

ConWeaver combines innovative language-recognizing and inferential methods from artificial intelligence and machine learning with best-practice standards from data integration and information retrieval.

With ConWeaver all data sources of your company will be accessible via a consistent search surface and presentation of the search results.

ConWeaver allows a rapid implementation of prototypical search applications for your enterprise.

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