ai-one™

Semiotics and Intrinsic Semantics
[**TECH-Talk!**]

Semiotics (time and position independent significance)

Semiotics is the study of signs and symbols. It includes the studies of semantics, syntax and pragmatics.

Semantics knows ambiguity, in which an identical syntax (i.e. a word or an entire sentence) can have another significance in another position or at another time in the real world.

Ambiguity is the most important problem, which a semantic system has to solve. In current systems, ambiguity is solved by implementing for each language all known language rules, which are specified in part on the next page.

From where do these rules originate?

In linguistics it is essential to observe and analyze, to recognize all the rules and then to generalize them, all the while observing the syntax (signs) and semantics (content), the position (pragmatics) of the events and of the time period. The findings then have to be formulated into a set of rules.

Every mother who teaches her child a language does exactly the same, she corrects the child and explains how to use the language – intuitively and spontaneously. A course in linguistics is not a prerequisite for teaching the child. The mother teaches the language just as she herself has learned it. Of course there are variations depending on the education level of the mother.

This shows, that humans have absorbed the rules. When learning a language, humans recognize the patterns, in part independently and intuitively and in part by going to school. So, the human semantic system understands and uses the semiotic principles just as it recognizes and uses the intrinsic rules of the language.

Intrinsic semantics

Intrinsic semantics signifies that in every logically built text corpus, all rules are modeled intrinsically. They "only" have to be recognized. To recognize them, the same semantic data space as the one inherent in humans has to be created. If successful, a spontaneously reactive, learning linguistic system is generated – ai-one™ represents such a holosemantic data space, in which the spontaneous semiotics and all the other linguistic rules apply. Furthermore, ai-one™ is language independent and generic.

The rules of linguistics (excerpt)

In the course of centuries scientist have strived to translate the continuously changing use of the language in a fix set of rules. They have succeeded, although the content and frequently also the rules become antiquate, which required a constant adaptation.

Study	Explanation
Phonetics	study of sounds of human speec
Phonology	is the systematic use of sound to encode meaning in any spoken human language
Morphology	study of the structure of words
Morphophonology	study of the phonological structure of words
Lexicology	study of the structuring in a vocabulary
Semiotics	study of signs and symbols. It includes the studies of semantics, syntax and pragmatics.
Syntax	study of principle and rules for constructing sentences
Semantics	study of meaning
Pragmatics	studies the ways in which context contributes to meaning
Text linguistics	studies the structure, function and effect of text and its components
Cognitive linguistics	the study of the relation between language and thought
Neurolinguistics	the study of neural mechanisms of the brain that control the comprehension, production and acquisition of language
Language acquisition	the study of the process through which a human acquires language
Computational linguistics	Language recognition via computers
Sociolinguistics	study of the effect of the aspects of society on the way language is used
Language policy	study of political basic conditions for standardizing a language or multilingualism
Interlinguistics	study of various aspects of international communication including international auxiliary languages
Discourse analysis	is a general term for the linguistical analysis of discourse. Dependent on what is regarded as discourse there are different interpretation. For social science not only the form but also the content of discourse is subject of the analysis
Linguistic relativity hypothesis:	Relation between language and the speaker's view of the world
Corpus linguistics	study of language as expressed in samples or "real world" text
Ethnolinguistics	study of the relationship between language and culture and the way different ethic groups perceive the world
Forensic linguistics	is a field of applied linguistics involving the relationship between language, the law and crime and includes a variety of subdisciplines. The range of topics includes identification of speakers via voices analysis (forensic phonetics) and identification of writers of relevant legal texts, which can be blackmail letters, written claims of responsibility, confessions, testaments, or plagiarism.

(Source Wikipedia)

The ai-one™ libraries and how to use them

At first a holosemantic data space is created, in which all relevant information is imported. The importing process is according to the facsimile rule. This means that the data will not be transformed but content and structure will be transferred 1:1 without any changes.

This holosemantic data space is at the same time memory as well as processor. All logic processes take place directly in the memory - our brain functions in the same way, though it is very uncommon in computing. In this holosemantic data space a set of basic rules are known, of which all linguistic rules or queries can be formulated and used. This too is consistent with the proceeding of the brain. Which is why we named our AI *„biologically inspired intelligence"* – it is copying from nature.

The neuronal ai-one™ data kernel (NDK)

The NDK is a new concept of organizing data. The basis of the concept is a holosemantic, neuronal net. The SDK is the „assembler layer" of the NDK. Currently, a set of 13 basic instructions are available. We are working to increase the set of instructions.

NOTE: The ai-one™-NDK is not limited in the sense of a database query language, but is rather the basis and the toolbox for a database language to work with the new technology. So, an IT expert can formulate with the ai-one™-NDK his or her own database language.

Data structures

It is required to devise the structure according to non-neuronal databases, if the ai-one™ NDK combined with "normal" data processing is implemented. For a better and faster understanding, our terminology was adapted to the known terminology of DBMS terminology.

The data structure in conventional databases is in principle hierarchic or relational. These data structures apply for all "data sets". However, in practice only few of the data structure correspond with the structures of the reporting. Therefore, a considerable programming effort is required to generate the necessary analyses.

The concept of **ai-one™-NDK** is, that although data elements have relationships between each other, these are dynamic and no pre-defined data structure is required to describe them. Since the NDI does not use any fix and pre-defined data structures, the database is extremely flexible, also the time and effort for developing applications is small and therefore cost-effective.

The basic elements of **ai-one™-NDK** is the group. A group consists of general data, which belong together (like a data set). Each group can have an optional attribute. Additionally each group can be tagged with a date/time/ID stamp. ai-one™ can also model multi-dimensional und heterachic structures, that refer to the space time. Syntax: The communication with the NDK is through strings. An instruction consists of different parts, which are delimited by "¦". The first part is always the name of the instruction. Amount and order of the individual parts can vary. The ID is an internal, unique number, which is given consecutively and only once. So each group has its own unique number. Groups then can again be combined to other groups. So, a data network arranges itself. Data sets of a data group, such as addresses, can vary. The NDK provides all the required instructions to manage them and also to navigate in the data network, for saving and reading the data. The NDK only works with „handles" and „semantic" (below abbreviated with „&hDl" and „sEm"). Handle-numbers (below: hDl) always starts with the sign Ampersand "&".

*(Please find detailed information on handling the **ai-one™- NDK** in the manuals.)*

The functions and instructions in ai-one™ (excerpt)

The functions and instructions are explained in parts below. Also, explained is how they relate to the known linguistic set of rules which shows how ai-one™ functions.

ai-one	Linguistics	Function	Output	Explanation
Select	Select	Returns: String with position (structure) and content
Complete	Syntax	Returns: String with all variants of the requested Syntax
Connect	Asso-Stufen	Returns: String showing the relevance between two words, how many steps and over which words
Attrib	Attribute	Returns: String with Attributes
Fetch	Fetch	If Attrib is omitted, returns the semantik of &hDl, If "&" is omitted, return is the Semantic of the attribute if connected to &hDl; If "&", then return is the &hDl of the Attrib, connected to &hDl
Subsemahandl	Index	Subsemantic Handles; Return: List of sema-&hDl, connected to &hDl, delimiter is "¦" and blank
Subcellhandl	Index	SubCell Handles; Return: List of Cells-&hDl, connected to &hDl, delimiter is "¦" and blank
Intic		Returns the unique Numbers of &hDl
Inticrel		Returns the ID-Number relative to &hDl defined by offset
Semantic	Semantik	Returns the Semantic of &hDl delimited by blank
Asso	Assoziation	Returns a List of sEm, assoziated to sEm: Format: % sEm¦% sEm
Similar	Phonetic	Compares two sentences; Returns the similarity of sentenze1 and sentenze2 in %
similar_w	Phonetic	Returns a List of similar sEm to sEm, Format: % word¦% word
Wo?	Concepts	ai-one™ can detect concepts. Who is a question to find a human. ai-one™ can learn this concept by teaching it 4-5 questions, and it then generalizes the question and uses the knowledge immediately in other cases.

Modular instructions

Generally, semantic functions or problems can not be solved by one simple instruction, but by a chain of instructions.

EXAMPLE: To answer a complex question ai-one™ will search for a subject area or terms by association. Then the system identifies and evaluates the semantic relations in the results. It then chooses the strongest or most relevant out of these relations. The system matches semantically these relations and words, from these the requested semantic cloud with the appropriate words and phrases is generated. Though it sounds complicated, it really is not.

The expert can combine any instructions or even create new ones in the holosemantic data space.