

AS IT IS, INC.



www.truethinker.com

TrueThinker Technical Backgrounder

Note: If any of the words/terms in bold italic type are unfamiliar to you, please refer to the glossary following this backgrounder.

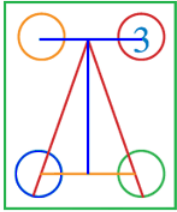
Since the 1950s, computer-processing speed has increased by roughly a factor of 10 to the 8th power. This magnitude of difference is the same as the difference between a leisurely walk and moving at the speed of light. Yet, over that period the basic method for using computers has remained essentially the same--explicitly programmed instructions and domain-dependent data structures

TrueThinker™ (www.truethinker.com) arises from original computer research conducted in the 1950s and 1960s on automated language translation. A small group of scientists, mathematicians and philosophers continued this work by developing a set of theories on human/machine learning, culminating in the 1990s with a partnership with Unisys Corporation to commercialize the technology, a patented AI application called the AutoGnome™, which is embedded in TrueThinker. The AutoGnome is a fundamentally different process for learning solutions—a clear alternative to constructing them.

The AutoGnome is a general-purpose system of automated *inference/inquiry* software exploiting a system of computerized *Semiosis*. In the design of the AutoGnome, the essence of learning is the creation of reliable *acts*, where the results of reliable actions generally satisfy one's intentions. Knowledge is a constructed collection of potential reliable acts, whereas experience is recorded as a series of actual performances of such acts. Acts, their components, qualities, and other essential internal states of the AutoGnome are represented by a system of *signs* that it constructs, interprets, and maintains for itself. Hence, the AutoGnome is a system capable of Semiosis—or often referred to as a *semiotic technology*.

The AutoGnome acts as an intelligent agent residing in TrueThinker. With its continuous adaptive learning from mimicking the user's behavior, the AutoGnome will grow into a likeminded replica of a user acting in the virtual world of the Internet. This learning process is called the synthetic mind, with the AutoGnome its expression in software. Its primary capability today is knowledge organization (manual, supervised and automated categorization).

The AutoGnome mirrors the way the human brain interprets information and learns about its environment—in other words, how knowledge is created and used. As the AutoGnome



AS IT IS, INC.

Glossary of TrueThinker Terms

- Abduction:** creating a hypothesis that explains a surprising observation
- Conceptual:** reasoning about meanings that integrate multiple perceptions
- Deduction:** reasoning from general understanding to particular expectations
- Disorder:** indeterminate or uncertain experiences
- Dyadic:** a relation between two things, such as sign-object or predecessor-successor
- Effector:** a device generally employed to produce intended changes in the environment
- Generalized intelligence:** a system for learning and using knowledge that does not rely on assumptions about the content of that knowledge
- Identity:** a system of relations describing the unique organization of an autonomous entity that it seeks to maintain
- Induction:** reasoning from observations to general understanding
- Inference:** In logic, the process of reasoning from a premise to a conclusion.
- Inquiry:** any process that has the aim of augmenting knowledge, resolving doubt or solving a problem
- Mediator:** a device generally employed to maintain or modify the relation between other entities or devices
- Monadic:** the simplest form of relation—that of something by itself without regard to any other
- Order:** determined and certain experiences
- Perceptual:** reasoning about the form and significance of actions directly on the environment
- Performance:** applying existing knowledge to interpret a situation and produce effective acts in it
- Pragmatic:** reasoning about the value of behavior from a particular entity's perspective
- Probabilistic:** referring to the belief that certainty is impossible, therefore decisions must be based on probabilities
- Recursive:** self-repeating
- Semiosis or semiotic technology:** the theory of signs; any form of activity, conduct, or process that involves signs, including the production of meaning
- Semiotic structure:** a system of the essential sign types and processes
- Sensor:** a device generally employed to act on the environment for the purpose of determining its state
- Sign:** something that stands for something else; a discrete unit of meaning including words and images; mechanism for creating understanding
- Triadic:** a relation between three things that cannot be decomposed into equivalent sets of dyadic or monadic relations
- Valuational:** ability to estimate the importance or usefulness of an experience or act