AI and NLP – a fundamental approach

(the downfall of the evolution theory as the assumed origin of intelligence and language)
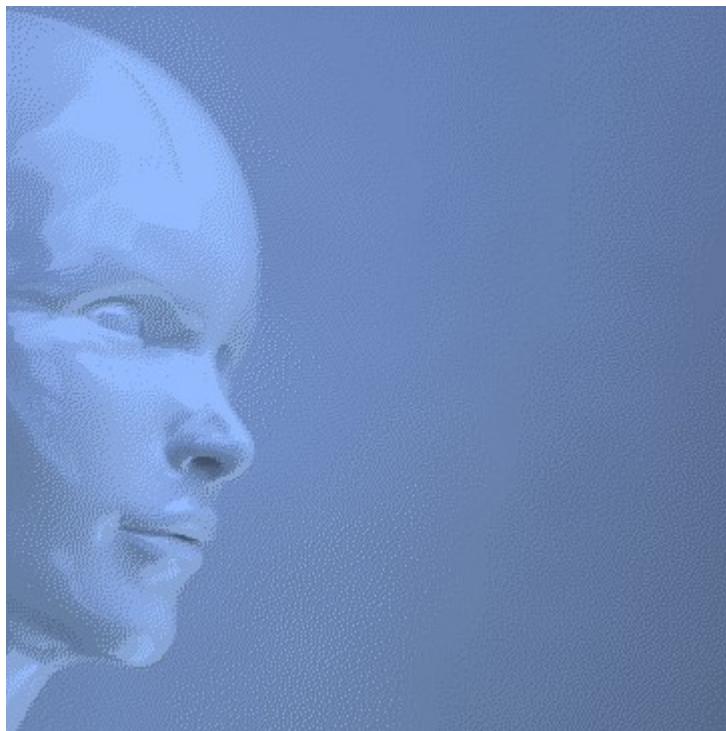
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Introduction

In 1853, mathematician <u>George Boole</u> [1] published "<u>An Investigation of the Laws of Thought</u>", in which he described a systematic relationship between language and logical thought. He described this relationship in the form of algebra, by which he considered the field to be a fundamental science. (A fundamental science investigates natural laws and logic.)

Around the year 1956, the field of Artificial Intelligence (AI) and knowledge technology was started. The field is considered a behavioral or cognitive science, which researches behavior.

However, there are a few reasons to believe that the current approach to AI and knowledge technology has a fundamental problem:

· Intelligence and language are natural phenomena. Natural phenomena obey laws of nature. And laws of nature are investigated by a fundamental science. However, the field AI and knowledge technology is considered a cognitive science;

· In addition, the field AI and knowledge technology still has no fundamental (natural) definition nearly 60 years after its start. It is possibly a consequence of the above, that the field is considered a cognitive science, rather than a fundamental science;

· A science integrates its disciplines. George Boole proved a systematic relationship between language and logical thought, while the current integration of both – language and logic – has remained at least underexposed: Reasoners (like Prolog) are able to reason, but their results – derived knowledge – can not be expressed in readable and automatically constructed sentences. Systems such as chatbots may well produce readable sentences, but they are unable to reason logically. Controlled Natural Language (CNL) systems are very limited in integrating both disciplines;

· I have applied the scientific method, which implementation resulted – in my opinion – in a higher degree of integration of both disciplines. Even more, not a single technique in the field of AI and knowledge technology proved to be useful to the implementation.

What if George Boole was right? What if intelligence can be defined by laws of nature? What if language appears to obey natural laws of intelligence? Wouldn't such a fundamental approach speedup progress in the field of AI and knowledge technology?

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1 At the age of 17 he had a mystic experience in which he felt God called on him to explain how the mind processes thought. He decided to do this in a mathematical form, for the Glory of God.

Thinknowlogy in a nutshell

In order to contribute to science, the scientific method needs to be applied, starting with an unambiguous, fundamental (=natural) and deterministic (=implementable) definition:

Natural intelligence is the extent to which one is able:
- to independently group what belongs together;
- to independently separate what doesn't belong together;
- to independently archive what is no longer relevant;
- to independently plan future actions;
- to independently foresee the consequences that the planned actions will have;
- to independently learn from mistakes.

Natural intelligence applied to language is called: **meaning**. Grammar provides clues of meaning to our brain in order to structure the gained knowledge. These are clues of grouping, separating, archiving and planning. By utilizing these clues – or natural laws – we are able to implement autonomously structuring of knowledge in information systems.

I have identified a few Natural Laws of Intelligence in grammar, which I am currently implementing:
- Conjunction "*and*" indicates that knowledge belongs together;
- Conjunction "*or*" defines a choice;
- An indefinite article (in English: "*a*") defines a structure;
- A definite article (in English: "*the*") defines an assignment;
- Basic verb "*am/is/are/was/were*" defines defining logic;
- Basic verb "*has/have/had*" defines possessive logic.

The implementation of these Natural Laws of Intelligence in grammar drive a set of structuring algorithms in my system, in order to independently group, separate and archive knowledge in its knowledge base.

Chapter 1 illustrates the current state of AI and knowledge technology. Chapter 2 categorizes attempts on AI and knowledge technology. Chapter 3 describes the fundamental approach of Thinknowlogy and the limits of AI. Chapter 4 refutes the evolution theory as the assumed origin of intelligence and natural language.

1. The current state of AI and knowledge technology

In the years before the first flight of the Wright brothers, aviation wasn't scientific yet, because the attempts were "inspired by nature", using feathers, flapping wings, bird suits, et cetera:

- YouTube: "first attempts to fly by man";
- YouTube: "Man's Early Flight Attempts";
- YouTube: "Death Jump - Franz Reichelt jumps off the Eiffel Tower".

However, the Wright brothers understood: A machine will only be able to fly if it is based on nature, based on Laws of Physics.

This situation is illustrative for the current state of AI and knowledge technology, which is not scientific yet:
- This field lacks a natural definition of intelligence (for AI) and meaning (for knowledge technology);
- Without natural definition, this field lacks a natural foundation;
- Without foundation, the techniques developed on AI and knowledge technology are in fact baseless. And without common (natural) foundation, its disciplines – like automated reasoning and natural language – can not be fully integrated;
- Being baseless, AI got stuck at simulation of behavior, and knowledge technology got stuck at processing (linking) of keywords.

Only a fundamental approach – based on nature – will deliver significant progress.

1.1. Starting point depend on the world view of the researcher

Since the origin of life is subject to discussion, the starting point for researching AI and knowledge technology depend on the world view of the researcher on the origin of intelligence and natural language:

- According to the evolution theory, intelligence would have been emerged from nothing, and natural language would have been evolved from the primal sounds of cave men;
- According to the biblical world view, God has created laws of nature to make his creation run like clockwork. So, it is believed that God also created intelligence and natural language. Therefore, it is assumed that Adam was directly able to speak after his creation by God, and that Adam was instantly intelligent.

The one with the world view nearest to the way nature works – the one who understands nature the best – will have the best results, in the same way as the Wright brothers were the ones who understood the essence of flight – the laws of physics – the best.

2. Main categories in AI

Techniques in AI can be categorized into five groups:

- Evolutionary Intelligence – hoping for intelligence to emerge by "self-improvement";
- Programmed Intelligence – intelligently designed by programmers;
- Autonomous systems – designed to utilize a natural (consistent) source;
- Autonomous Intelligence – designed to utilize a natural source of intelligence;
- Super-intelligence or Singularity – Nonsense, as explained by the video on YouTube: "How Intelligent is Artificial Intelligence?".

Examples:

- Evolutionary Intelligence: Evolutionary Algorithms (EA), Genetic Algorithms (GA), knowledge technology and Artificial Neural Networks (ANN);
- Programmed Intelligence: Zork, Virtual Assistants, chat(ter)bots and knowledge technology;
- Autonomous systems: Mars rovers, autonomous drones and driver-less cars;
- Autonomous Intelligence: Thinknowlogy – a fundamental approach to AI and knowledge technology.

Results:

- Evolutionary Intelligence: Evolutionary Algorithms (EA) and Genetic Algorithms (GA) are obviously algorithms. Algorithms are designed by definition, and design isn't supported by the evolution theory. So, EA and GA are not supported by the evolution theory. Regarding to the use of random: Until further evidence, such a system obeys the golden rule "*Garbage in, garbage out*";

- Programmed Intelligence: If a system is intelligently designed by a human, many consider it an AI system. However, the designer was the only intelligent factor, while the system itself is unable to create new – or more advanced – functions;

- Autonomous systems are able to utilize a natural source. Mars rovers, autonomous drones and driver-less cars combine the information from "natural" (read: consistent) sources, like GPS, radar, cameras and a map to navigate autonomously. However, the intelligence in such systems is programmed. See category: *Programmed intelligence*. Such systems are autonomous, but not autonomously intelligent;

- Autonomous Intelligence: Grammar is subject to Natural Laws of Intelligence. So, by utilizing grammar as a natural source of intelligence, Thinknowlogy is autonomously intelligent.

The word "autonomous" is explained in 3.2. Definition of autonomy.

2.1. Evolutionary intelligence

In his "On the Origin of species", Charles Darwin proved Natural Selection. It is defined as: "small changes over time within **one species** or isolated population". It is scientifically proven. So, hardly anyone has problems with this phenomenon, which is later called: micro-evolution.

At the end of his work, Darwin assumed that Natural Selection might have a *bigger brother* – later called: macro-evolution – which might explain the origin of species without God as the creator of all. This assumption is defined as: "the emergence of new – and increasingly more advanced – functions by random mutations". Note that Darwin didn't prove macro-evolution, and that the title is therefore misleading. Because he didn't prove the origin of species.

Nevertheless, even more than 150 years after publication, this assumed process of macro-evolution has not been replicated yet in artificial systems. So, even from the world view of the evolution theory, this assumed phenomenon will not be able to contribute yet to AI or knowledge technology.

Some believe that micro-evolution will become macro-evolution over time, if you just wait long enough. Let's put the definition to the test: "small changes **over time** within **one species** or isolated population, **over time**". It stays "over time". And it stays "within one species".

Besides that, according to profound evolutionist Richard Dawkins, evolution has no plan and no direction. So, if it would be possible to implement macro-evolution in artificial systems, how can we be sure it will evolve in the same direction as assumed by the evolution theory, able to understand our language and connecting to our intelligence?

So, the evolution theory will not contribute to AI, nor to knowledge technology.

2.2. Artificial Neural Networks

The brain is an active organ. However, without a definition of the active capabilities of natural intelligence, an Artificial Neural Network (ANN) is a passive network, no matter how many neurons are connected, and no matter its network configuration.

ANN is a useful technique. However, it is only a storage system for fuzzy data, and it has no active capabilities needed for intelligence.

Some people believe that an ANN can evolve intelligence "by itself" – category Evolutionary Intelligence – because this technique is "inspired by nature". However, if building airplanes was "inspired by nature", airplanes would have feathers and flapping wings. But they can fly without them. So, feathers and flapping wings aren't essential for flight.

In the same way, neurons are not essential to intelligence. They are only dumb components – building blocks of the brain – like semiconductors are building blocks of a computer: A computer doesn't need semiconductors. It can be built entirely mechanical (Charles Babbage), or having vacuum tubes as building blocks (Eniac).

2.3. Knowledge technology

The quality of a system is determined by the quality of its output, divided by the quality of its input. The quality of the current approach to knowledge technology is very bad: Rich, meaningful sentences in, (linked) keywords out (which are sometimes filled-in on the blanks of a human-written sentence, or forced into a sentence-like construction).

In its infancy, Thinknowlogy only accepts a limited grammar. However, its output has the same quality as its input, which is a quality ratio of 100%. It proves: Thinknowlogy preserves the meaning.

2.3.1. Fundamental flaws in knowledge technology

The current approach to knowledge technology is based on the reduction of rich, meaningful sentences to "a bag of keywords", after which is tried to reconstruct the meaning by linking the keywords: All words are used in parsing the sentence, but only the keywords are used during the next stages of knowledge technology, like semantics, statistics and reasoning.

The current approach to knowledge technology is therefore unable to integrate automated reasoner and natural language. It is unable to complete the cycle:
 • Converting human language to a computer representation;
 • Applying automated reasoning to that computer representation;
 • Expressing the deriving knowledge in human language again, as readable sentences.

To illustrate by extremely simple sentence "*John is **the** father of Paul*":
 • The current approach to knowledge technology feeds the automated reasoner by the keyword-based representation of the sentence: father(John,Paul);
 • Some reasoners – like Prolog – don't distinguish word types. They consider the words "*father*", "*john*" and "*paul*" as variables – written as lowercase strings – by which the word types are lost in translation. This loss can be repaired by looking-up the words in a words list;
 • Also definite article "*the*" is lost, by which a reasoner is unable to process the meaning of "**the** father". It will process the sentence as "*John is **a** father of Paul*", implying that Paul can have multiple fathers. Clearly, there is meaning lost. And it will not be easy to recover this loss of meaning;
 • Above all, how to express the derived knowledge in readable sentences again?

Almost **all** words of a sentence contribute to the meaning, while the current approach to knowledge technology only uses keywords in the stages after parsing. So, the meaning of words like definite article "*the*", conjunction "*or*", possessive verb "*has / have*" and past tense verbs "*was / were*" and "*had*", are lost, by which the current approach to knowledge technology only provides an indication of the meaning, but not the meaning itself.

No matter what technique is used in trying to recover the meaning, there is no way to "upgrade" linked keywords to rich, meaningful and readable sentences again. As a consequence, search engines are limited to searching by keywords, the integration of automated reasoning and natural language got stuck, and disambiguation (solving ambiguity) is still the biggest problem in knowledge technology.

Some people believe that meaning will emerge "by itself". See category Evolutionary Intelligence.

2.4. Self-organizing systems

Some people consider Artificial Life simulations, evolutionary algorithms, genetic algorithms, Artificial Neural Networks (ANN), fractals, and the forming of ice crystals as self-organizing systems. But is that true?

Self-organizing capabilities are synonym to intelligence, while "organizing" – without "self" – can be illustrated by the mess found in a teenager's bedroom:

Clearly a teenager's bedroom has no self-organizing properties. So, teenagers themselves need to show active behavior in organizing of their bedroom: Books, toys and clothing need to be grouped and stored (school books separate from leisure books, computer games separate from airplane models, sports clothing separate from evening dresses, et cetera). And toys that doesn't match the teenager's maturity – like dolls and toy cars – need to be given-away or at least stored (archived) outside the teenager's bedroom.

Let's determine whether a system is self-organizing, or not:

- Genetic algorithms are surely not self-organizing. In contrary, these algorithms are designed to search in an unorganized way: at random;

- Evolutionary algorithms are not self-organizing, because they are designed to find an optimum value, not to group what belongs together, nor to separate what doesn't belong together, nor to archive when data becomes obsolete, et cetera;

- An Artificial Neural Network doesn't archive when fuzzy data becomes obsolete, and it is only storage system for fuzzy data. But one can argue if an ANN is able to group what belongs together and to separate what doesn't belong together. However, the test set – human influence – determines whether the stored information is correct or not. So, also an ANN isn't a self-organizing system;

- Fractals are static algorithms, delivering the same pattern every time. They have none of the active capabilities of intelligence. So, fractals are not self-organizing, and have therefore nothing to do with intelligence;

- Also the forming of ice crystals and ice crystal patterns is passive: The involved water molecules just obey the laws of physics, which doesn't include the active capabilities of intelligence. So, ice crystals have no self-organizing capabilities;

- Speech detection (from speech to written text) maps an input pattern to a defined output pattern (character or word). Mapping is a one-on-one peer connection. It isn't grouping, nor separating. So, speech detection has nothing to do with intelligence;

- Artificial Life simulations show the **behavior** of living creatures. But the conditions are programmed upfront. To illustrate: A flight simulator simulates the **behavior** of flight, without being able to fly. Adding random, doesn't provide Artificial Life simulations any of the active capabilities of intelligence. It is just another variety on the same theme.

3. The fundamental approach of Thinknowlogy

In order to contribute to science, the scientific method needs to be applied, starting with an unambiguous, fundamental (=natural) and deterministic (=implementable) definition.

3.1. Definition of intelligence

Intelligence is a set of basic capabilities, autonomously applied to a set of basic concepts.

Intelligence is a natural phenomenon, which can be described as the extent to which one is able to organize independently. More specific: to autonomously avoid chaos, to autonomously create order and to autonomously restore order.

The basic capabilities of intelligence are:

- Grouping (combining) of individual or separate objects, with the aim of achieving a goal that can not be achieved by either of those objects separately;
- Separating (differentiating) compound or intertwined objects, with the aim to clarify the situation, by putting them in their own context;
- Archiving of obsolete information, separating current from obsolete information;
- Planning future actions, setting goals and anticipation to changes;
- Foreseeing possible consequences: Using knowledge and experience to predict possible consequences of planned actions (own plans and planned actions of others);
- Learning from mistakes: Using knowledge and experience to determine the course of a mistake, and to avoid making this kind of mistake in the future.

These capabilities of intelligence can be applied to basic concepts like: numbers, language and spatial objects. Intelligence applied to language is called: **meaning**. Grouping of numbers, we call: adding. Separating of numbers, we call: subtracting.

Deepening:

- Grouping, which is the process of creation;
- Separating, which is the process of understanding;
- Archiving, which is the process of omitting;
- Planning, which is the process of governing.

The remaining two capabilities of intelligence (foreseeing and learning from mistakes) require feedback, the use of knowledge and experience. This part of intelligence is called: **wisdom**.

Note: I am implementing grouping, separating and archiving in Thinknowlogy as much as possible, while leaving the implementation of the remaining capabilities to future generations.

3.1.1. IQ test

When comparing the assignments of an IQ test to the definition of intelligence, it becomes clearly that IQ tests are focused on the capabilities grouping and separating, rather than archiving, planning, foreseeing and learning from mistakes.

But more important than a high IQ score, is the question how close one's world view is to the way nature works. One can have an extremely high IQ score and develop many new theories. But what is the contribution of those theories, when they explain a biased world view rather than the way nature works?

3.2. Definition of autonomy

In the definition of intelligence, the word "independently" or "autonomously" is used, and it needs to be defined as well:

An autonomous system relies on the consistency of a **natural** (or consistent) source. So, an autonomously intelligent system relies on the consistency of a natural source of intelligence.

Currently, information systems are relying on the use of **artificial** sources, like semantic vocabularies, ontology databases and statistics. Thinknowlogy utilizes a natural source of intelligence: grammar, as will be explained in the next paragraph.

Illustrating the difference between artificial intelligent systems and autonomously intelligent systems by a known Chinese saying: "*Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime*".

3.3. Natural Laws of Intelligence in grammar

Any communication method – generally called: language – has a structure. Grammar is the structure of language. And grammar defines capabilities of grouping, separating, archiving and planning. These capabilities embedded in grammar, I call: Natural Laws of Intelligence.

I have identified a few Natural Laws of Intelligence in grammar:

- Conjunction "*and*" indicates that knowledge belongs together;
- Conjunction "*or*" defines a choice;
- An indefinite article (in English: "*a*") defines a structure;
- A definite article (in English: "*the*") defines an assignment;
- Basic verb "*am/is/are/was/were*" defines defining logic;
- Basic verb "*has/have/had*" defines possessive logic.

Besides that, grammar also provides logical reasoning constructions, as described in Chapter 2. The Algebra and Logic of Natural Language of the design paper.

3.3.1. Example: Autonomous generation of questions

A science integrates its disciplines. However, not a single technique in the field of AI and knowledge technology is able to fully integrate for example automated reasoning and natural language, like the automatic generation of questions:

> Entered: *"A person is a man or a woman."*
> Entered: *"Addison is a person. "*
•
• Generated question:
< *"Is Addison a man or a woman?"*

The implementation of this kind of automatically generated questions is extremely simple when Natural Laws of Intelligence in grammar are utilized:
  - A Natural Law of Intelligence in grammar: Conjunction "*or*" defines a choice;
  - Given "*A person is a man or a woman.*" and "*Addison is a person.*";
  - Substitution of both sentences: "*Addison is a man or a woman.*";
  - Conversion to a question: "*Is Addison a man or a woman?*".

The current approach to knowledge technology only feeds the keywords from a sentence to the automated reasoner, while words like definite article "*the*", conjunction "*or*", possessive verb "*has / have*" and past tense verbs "*was / were*" and "*had*" are crucial to integrate reasoning and natural language. Therefore, not a single technique in the field of AI and knowledge technology is able to fully implement automated reasoning expressing its derived knowledge in readable sentences.

More info on logical reasoning: Chapter 2. The Algebra and Logic of Natural Language of the design paper.

3.3.2. Controlled Natural Language / Context-Free Grammar

Controlled Natural Language (CNL) or Context-Free Grammar is said to avoid ambiguity. However, by avoiding ambiguity, it also avoids Natural Laws of Intelligence in grammar, which is crucial to reasoning. For example, CNL systems – like the one developed by the [Attempto project](#) – avoid the use of conjunction "*or*".

So, instead of "*A person is a man or a woman.*", a CNL system needs three sentences to describe the same, avoiding conjunction "*or*":

- "*Every man is a person.*";
- "*Every woman is a person.*";
- "*No woman is a man and no man is a woman.*".

And therefore, also CNL systems fail to integrate automated reasoning and natural language, unable to express their derived knowledge in readable sentences.

3.4. Surpassing human intelligence

In AI, some people try to build a general purpose intelligent machine, even without defining natural intelligence itself.

Chess computers and bulldozers can surpass human capabilities: Chess computers can beat human chess players, and bulldozers can beat humans in the amount of moved dirt. But systems like chess computers and bulldozers can only surpass humans in a **specific task**, because they are specifically designed for their purpose, while human capabilities are **general purpose**: Most humans can play chess to some extent and most humans can move dirt from A to B. However, a bulldozer can't play chess and a chess computer can't move dirt.

It is possible to have a bulldozer with built-in chess computer. However, when multiple specific designs are combined in one system – in order to make the system as versatile as can be – the overall design becomes weaker and less practical.

It would require macro-evolution – the emergence of new and increasingly more advanced functions by random mutations – to surpass human level intelligence. However, macro-evolution has never been observed in any artificial system. So, for now, until further evidence, we have to assume that macro-evolution will not cause artificial systems to surpass human intelligence.

Isn't a computer a general purpose machine? No, a computer is an **open system**. It is open to run any application obeying the installed operating system. But it can't move dirt from A to B, nor toast a slice of bread.

3.4.1. Free will and morality

Humans separate from animals by having a spirit, which provides humans **a free will** and **a set of morals**. Spirits – being supernatural – are by definition not bound by laws of nature. Therefore, spirits can't be caught in machines, which are bound by laws of nature. So, a machine will never have a spirit; a free will and an autonomously controlled set of morals like humans have.

3.5. Summary

Fundamental science (researching logic and laws of nature)	Cognitive science (researching behavior)
Wright brothers: Laws of Physics, based on nature	"Inspired by nature": feathers and flapping wings
Airplane	Flight simulator
Definition required	No definition required
Artificial implementation of natural laws of intelligence	Simulation of behavior
Natural intelligence: to independently group, separate, archive, plan, foresee and learn from mistakes.	Programmed intelligence: Humans are the only intelligent factor.
George Boole: systematic relationship between language and logical thought.	Knowledge technology: Reduction of rich, meaningful sentences to "a bag of keywords".
Natural meaning: to independently group, separate, archive and plan.	Trying to reconstruct the meaning by linking keywords.
Integration of disciplines: > Entered: *"A person is a man or a woman."* > Entered: *"Addison is a person."* • • Generated question: < *"Is Addison a man or a woman?"*	No integration of disciplines
Disambiguation	Ambiguity

4. The evolution theory is a religion

Any Code of Conduct on scientific research endorses: Science is observable, testable, repeatable and falsifiable.

However, the origin of life – including intelligence and natural language – lies in the past. So, it can't be observed, tested, repeated and falsified. And no scientist was present to gather hard and direct evidence. Therefore, the origin of life itself – including intelligence and natural language – can't be part of science. Its origin can only be assumed or believed. So, the evolution theory and derivative theories can't be scientifically proven. They are a belief or religion, in the same way as creation by God is a belief or religion.

Even more, the evolution theory assumes the Second Law of Thermodynamics can be broken, and the Big Bang theory assumes the maximum physical speed – the speed of light – can be broken. So, if true, the evolution theory would be supernatural, defying laws of nature. And a supernatural entity we usually call: a god. So, the evolution theory is a belief, a religion.

Without an artificial implementation of macro-evolution, the evolution theory is nothing more than an interpretation of the past, that fails to contribute to the future.

4.1. Natural Laws of intelligence are in conflict with the evolution theory

The existence of Natural Laws of Intelligence in grammar is in deep conflict with the evolution theory:

- The existence of Natural Laws of Intelligence in grammar proves that natural language is a **structured** system – obeying laws of nature – while the evolution theory assumes that natural language have been evolved from **chaos**;

- The existence of Natural Laws of Intelligence in grammar also proves that both intelligence and natural language are related – natural language obeys natural laws of intelligence – while the evolution theory assumes that both intelligence and natural language have been evolved independently from chaos, and that they therefore aren't related to each other;

- Besides that, the evolution theory doesn't support the emergence of the laws of nature. So, Natural Laws of Intelligence can't have emerged in grammar, billions of years after the assumed Big Bang;

- Even more, it seems that the Natural Laws of Intelligence in grammar are universal – quite similar for each language – which means that languages must have a common origin, while the evolution theory assumes that languages have been evolved independently, without common origin.

So, the existence of Natural Laws of Intelligence in grammar can't be explained by the evolution theory.

4.2. If you do not believe in cows...

We all know: milk contains components like water, living bacteria and fungi.

If you do not believe in cows and you would examine a glass of milk, you have to conclude: The living bacteria and fungi have created the milk from water. Scientists go wrong that easy when it comes to the origin of the universe and the origin of life.

However, if you do believe in cows, you know that those animals produce milk from grass and water. Furthermore: The living bacteria and fungi actually degenerate the milk, instead of creating it. The cows are the metaphor for God, who has designed and created the universe, laws of nature and life. So, "evolution" is in fact: degeneration.

Example "borrowed" from Peter Scheele. More info on Wikipedia: Devolution (biology).

4.3. Mona Lisa

When I look at the Mona Lisa, I know it is a master piece of a genius. And exactly one person has claimed to be the artist: Leonardo da Vinci. I believe him, because he has left a detailed description how he has created this painting. We can learn from this artist to utilize Natural Laws of Geometry in order to create beauty.

When I look at nature, I know it is a master piece of a genius. And exactly one person has claimed to be the artist: God. I believe him, because he has left a detailed description how he has created nature. We can learn from this artist for example to utilize Natural Laws of Intelligence in order to create intelligence artificially in software.

Appendix: Genesis hidden in the Chinese language

The Chinese language is the oldest, continuously written language in the world. It was first written over 4,500 years ago. And some Chinese characters seems to refer to first book of the bible (Genesis). A few examples:

The Chinese character for "to create" consists of four components, and seems to refer to the creation of "Man" – later called: Adam:
- dust or mud: God has created Adam from dust;
- mouth or breath: God breathed into the nostrils of Adam;
- movement or life: Adam became alive;
- able to walk: Adam was directly able to walk (and to speak).

"*Then the LORD God formed the man from the dust of the ground. He breathed the breath of life into the man's nostrils, and the man became a living person.*" (Genesis 2 verse 7)

(See on YouTube: "Genesis hidden in the Chinese language? Part 2")

The Chinese character for "to covet, to desire" consists of two components, and seems to refer to the Fall:
- two trees: the tree of life, and the tree of the knowledge of good and evil;
- a woman: "Woman" – later called: Eve – desired the fruit of the only forbidden tree.

(See on YouTube: "Genesis hidden in the Chinese language? Part 3")

On YouTube: "Genesis Code Hidden Within The Ancient Chinese Language", amongst all:
- The Chinese character for "first" consists of three components: alive, dust and man. (Adam – created from dust – was the first man to become alive);
- The Chinese character for "to talk" consists of three components: dust, breath/mouth and alive. (Adam – created from dust – was able to talk);
- The Chinese character for "naked" consists of two components: man and fruit. (After Adam and Eve had eaten the fruit from the forbidden tree, they felt naked);
- The Chinese character for "pain" consists of two components: a piece and two trees. (Pain was a punishment from God for Adam and Eve after they had eaten a piece of fruit from the forbidden tree).

On YouTube: "How Chinese Characters confirm Genesis & Bible stories", amongst all:
- The Chinese character for "flood" consists of four components: eight, united, earth and water. (Noah, his wife and their three sons with their wifes, all eight were united in their boat, while the surface of the Earth was flooded with water).