AI and NLP – a fundamental approach

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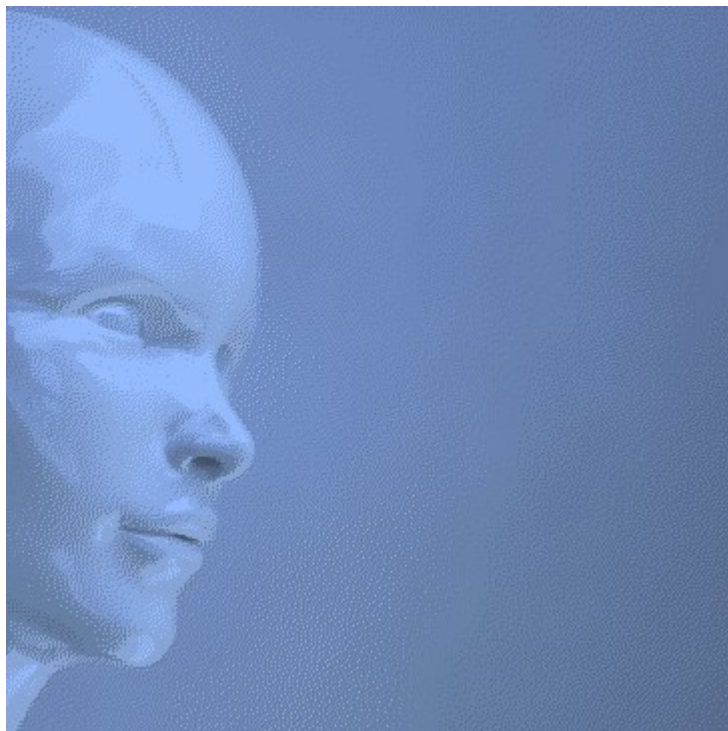
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Introduction

Around the year 1956, the field of Artificial Intelligence (AI) and knowledge technology was started. However, there are four reasons to believe that the current approach to AI and knowledge technology has a fundamental problem:

1. Intelligence and language are natural phenomena. Natural phenomena obey laws of nature. And laws of nature are investigated using (basic or) <u>fundamental science</u>, while the field AI and knowledge technology is being developed using (behavioral or) <u>cognitive science</u>, which researches behavior.

   When the results using cognitive science are implemented in machines, it delivers a simulation of behavior – focused on user experience – while fundamental science delivers an artificial implementation of natural laws.

   To illustrate: The current approach to AI and knowledge technology delivers a flight simulator (user experience) rather than an airplane (transportation). A flight simulator moves pixels on a screen – and it moves the cones of the speakers – but it doesn't leave the room, because it doesn't obey the laws of physics in regard to the essence of aviation. In the same way, a cognitive approach to AI and knowledge technology will never "leave the room", because it doesn't obey the laws of nature in regard to intelligence;

2. In addition, the field of AI and knowledge technology still has no unifying, fundamental (=natural) and deterministic (=implementable) definition, 60 years after its start, by which this field has no foundation in nature;

3. A science integrates its disciplines. However, the field of AI and knowledge technology fails to integrate (automated) reasoning and natural language. In other words, this field has a blind spot:

   ◦ Reasoners (like Prolog) are able to reason, but their results – derived knowledge – can't be expressed in readable and automatically constructed sentences;

   ◦ Chatbots and Virtual (Personal) Assistants may well produce understandable sentences, but they are unable to reason logically. Moreover, they are only able to select a human-written sentence in which they fill-in a user-written keyword;

   ◦ Controlled Natural Language (CNL) reasoners are limited to sentences with verb "is", and don't accept words like "was", "has", "had", "the" and "or";

4. I am applying the scientific method, while researching the way nature works in regard to intelligence and meaning. The techniques I am developing have – in my opinion – a a higher degree of integration of both disciplines than the techniques taught by science.

What if intelligence can be defined by laws of nature? What if language appears to obey natural laws of intelligence? If so, then this field should be researched using fundamental science. Wouldn't a fundamental approach – based on laws of nature and researched using fundamental science – speedup progress in the field of AI and knowledge technology?

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, and so on:

- YouTube: "Man's Early Flight Attempts";
- YouTube: "first attempts to fly by man";
- 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:
- This field lacks a unifying, fundamental (=natural) and deterministic (=implementable) 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 a simulation of behavior (not necessarily intelligent behavior), and knowledge technology got stuck at linking of keywords.

Moreover, even after 60 years, hardly anything fundamental is defined yet in this field (and scientists don't seem to care). So, I have to conclude that this field is not scientific yet, similar to aviation based on feathers and flapping wings.

I own a (printed) copy of the Encyclopædia Britannica, the 1990 edition. The topic Intelligence of the Macropædia starts with praising the founding fathers of the evolution theory for their contribution to this topic, because the evolution theory would finally explain the origin of intelligence. However, the article fails to explain what intelligence actually is…

At least 100,000 man years [1] of scientific research is already spent in the field of AI and knowledge technology, and scientists still fail to convert a sentence like "*Paul is a son of John*" in a generic (=scientific) way to "*John has a son, called Paul*".

Both sentences have (almost) the same meaning [2]. So, it must be possible to convert one sentence to the other, and back. However, such a conversion requires to understand what intelligence / meaning is. Lacking a natural definition of intelligence / meaning, no technique on AI and knowledge technology is able to deliver such a conversion in a generic way.

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

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1 60 years times 1,500 researchers on average
2 Meaning is: intelligence applied to knowledge, intelligent function in language.

1.1. Science, engineering and fiction

The field of AI and knowledge technology is partly fiction: The belief that intelligence and meaning will emerge and evolve "by itself", as if there is magic – or a supernatural power – involved. As long as it can't be explained in detail, it isn't scientific.

Only a small part of this field is generic, and therefore scientific: Predicate Logic describes the function of verb "*is/are*" in a generic way, the way nature works. Proof: A science integrates its involved disciplines. And Controlled Natural Language reasoners integrate reasoning and natural language in regard to verb "*is/are*".

However, Predicate Logic isn't expanded since its start roughly 180 years ago. So, it doesn't describe for example the natural function of verb "*has/have*".

The remaining part of this field is engineering, tailor-made solutions rather than a generic solution: Unable to define the natural function of for example verb "*has/have*", knowledge containing this verb needs to be programmed directly into a reasoner, like has_son(john,paul). This is an engineering trick rather than a scientific (generic) solution.

1.2. "Don't become a monkey that learns a trick"

My father taught me: "*Don't become a monkey that learns a trick*". It illustrates the current state of AI and knowledge technology:

Being unable to define intelligence and meaning in a unifying, fundamental (=natural) and deterministic (=implementable) way, scientists fail to define and teach the foundation of this field. Instead, a set of (baseless) techniques ("tricks") are developed and taught. The set of techniques on AI is said to implement intelligence in artificial systems, and the set of techniques on knowledge technology is said to implement meaning in information systems.

It is like watching children play, who are building a tower of wooden blocks: "*This tower is going to reach to the clouds*". But as a grownup, I know that the tower will fall-over when it has reached the height of one meter. And if it didn't fall-over yet, that the kid's attention will be lost at that time. In other words: This field is chasing hypes. Without foundation, empty promises are made, which will die a silent death after a while, being replaced by another hype.

In the food industry, the quality of food is guaranteed by the manufacturer by implementing a Code of Hygiene. So, if food falls on the floor, that piece of food doesn't meet the quality standard anymore. The same goes for other industries.

In the field of AI and knowledge technology however, there is no foundation defined that guarantees to implement natural intelligence in artificial systems, and to implement natural meaning in information systems. Let alone that a quality standard is defined to guarantee that the intelligence and meaning are preserved in the system, during each step of the process.

2. Overview of the current approach

Unable to define natural intelligence / meaning, the field of AI and knowledge technology implements **programmed intelligence**. It is clever engineering rather than natural intelligence / meaning. This video on YouTube separates clever engineering from the Science Fiction stories told on AI: "[How Intelligent is Artificial Intelligence? - Computerphile](#)".

In the following paragraphs, an overview on the current approach is listed. But first a brief introduction to the next chapter.

Autonomous systems: Mars rovers, autonomously flying drones and driver-less cars are examples of autonomous systems. They are able to utilize consistent sources to navigate, like radar, cameras and GPS. These sources are consistent with their maps and with their movement: If the vehicle moves, their radar, cameras and GPS will move accordingly. And marks on the map will eventually appear on radar and cameras when it comes near the GPS position of those marks.

Such systems are autonomous – but not autonomously intelligent – because the intelligence in such systems is programmed.

Autonomously intelligent systems: Grammar is a naturally consistent source. It is subject to Natural Laws of Intelligence. For example, each and every (human) language has an equivalent of conjunction "*or*", like in sentence "*Every person is a man **or** a woman*". This word has an intelligent function: It is used by our brain to separate knowledge, in this case to separate the words "*man*" and "*woman*".

By utilizing grammar as a natural source of intelligence, it is possible to implement natural intelligence / meaning in artificial systems, by which these systems become autonomously intelligent (up to a certain level).

2.1. Evolutionary intelligence

Evolutionary Algorithms (EA) and Genetic Algorithms (GA) are obviously algorithms. Algorithms are intelligently designed by definition, while intelligent design isn't supported by the evolution theory. So, EA and GA are not supported by the evolution theory. In regard to the use of randomness in AI, such a system obeys the golden rule: "*Garbage in, garbage out*".

Evolutionary Algorithms are useful though for finding an optimum value. They are comparable to a [PID Controller](#) used central heating systems, to find the optimum burning time in order to avoid *undershoot* and *overshoot*.

2.2. Artificial Neural Networks

The brain is an active organ, while 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, used for pattern recognition. It has nothing to do with natural intelligence.

To illustrate: An ANN is only able to detect "*a cat*" or "*no cat*". So, one and the same ANN is unable to detect "*a cat, but no dog*", "*a dog, but no cat*", "*a cat and a dog*" or "*no cat and no dog*". It requires natural intelligence – the capability of independent separation – to separate cats from dogs.

One can use multiple ANNs, one trained for detecting cats and one trained for detecting dogs. But in that case, humans separate cats from dogs, not the ANNs. So, without unifying, fundamental (=natural) and deterministic (=implementable) definition of intelligence, humans are still the only intelligent factor in AI.

Some people believe that an ANN can evolve intelligence "by itself" – see Evolutionary intelligence – because this technique is "inspired by nature". However, if building airplanes was inspired by nature, airplanes would have feathers and flapping wings.

Neurons are not essential to intelligence, in the same way as feathers and flapping wings are not essential to aviation. Neurons are only dumb building blocks of the brain, in the same way as the bricks of the Sagrada Família are only dumb building blocks of this cathedral. In order to recreate such a cathedral (natural intelligence), one shouldn't focus on the bricks (neurons) themselves, but on the architectural design of Antoni Gaudí.

One can not create intelligence until it is defined, in the same as one can not create a space rocket until one has defined the involved laws of physics (fundamental science).

Intelligence is a natural phenomenon, which can only be defined using fundamental science, while AI is researched using cognitive science.

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 might be filled-in on the blanks of a human-written sentence construction).

To prove the poor state of the current approach to knowledge technology: You will not find any system – other than Thinknowlogy – able to convert a sentence like "*Paul is a son of John*" in a generic (=scientific) way to "*John has a son, called Paul*". Both sentences have (almost) the same meaning. So, it must be possible to convert one sentence to the other, and back.

Only if the involved laws of nature are understood, one is able to convert light to electricity and back, motion to electricity and back, and so on. In the same way, converting one sentence to another – while preserving the meaning – requires to understand the Natural Laws of Intelligence in grammar. However, no technique on AI and knowledge technology is able to deliver such a conversion in a generic way.

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

2.3.1. Fundamental flaw in knowledge technology

In nature (grammar), knowledge and logic are combined: Keywords contain knowledge, while non-keywords contain logic.

Despite the advice of non-technical linguists, the technical (computational) linguists of the 1960's insisted to throw away the natural logic embedded in non-keywords, and to develop artificial logic instead by applying smart algorithms to keywords. As a consequence, techniques like ontology, semantic libraries, statistics and reasoning are deeply keyword-based, while the natural logic of sentences – expressed by non-keywords like definite article "*the*", conjunction "*or*", possessive verb "*has/have*" and past tense verbs "*was/were*" and "*had*" – is lost in the current approach to knowledge technology.

No matter what technique is used, there is no way replace the natural logic expressed by non-keywords. As a consequence, search engines are limited to search for keywords, the integration of automated reasoning and natural language got stuck, and disambiguation (solving ambiguity) is still the biggest problem in knowledge technology.

In this way, a blind spot is created in knowledge technology.

A science integrates its involved disciplines. However, the field of AI and knowledge technology doesn't. It is unable to integrate (automated) reasoning and natural language:
 • Reasoners (like Prolog) are able to reason, but their results – derived knowledge – can't be expressed in readable and automatically constructed sentences;
 • Chatbots and Virtual (Personal) Assistants may well produce understandable sentences, but they are unable to reason logically. Moreover, they are only able to select a human-written sentence in which they fill-in a user-written keyword;
 • Controlled Natural Language (CNL) systems are very limited in integrating both disciplines.

Some people believe that meaning will emerge "by itself" – see Evolutionary intelligence – while others believe that the meaning is preserved by using all words during the parsing of a sentence. But both fall short to integrate reasoning and natural language, as discussed in the previous paragraph.

2.3.2. Predicate Logic

Predicate Logic is known for roughly 180 years. This algebra describes the natural function of words like indefinite article "*a/an*", adjective "*all/every*", conjunction "*and*" and basic verb "*is/are*". However, it doesn't describe the natural function of words like definite article "*the*", conjunction "*or*", possessive verb "*has/have*" and past tense verbs "*was/were*" and "*had*".

Unable to define the natural function of for example verb "*has/have*", knowledge containing this verb needs to be programmed directly into reasoners, like: has_son(john,paul). This is an engineering trick rather than a scientific (generic) solution, because this trick requires to program each and every noun relation (has_daughter, has_father, has_mother, and so on), and for each and every new language. As a consequence of this trickery, there is no technique available to convert a sentence like "Paul is a son of John" in a generic way to "John **has** a son, called Paul", by which the keywords "Paul", "son" and "John" don't have to be programmed into the reasoner upfront.

Moreover, Predicate Logic doesn't describe word types. So, instead of "*All humans are mortal*", it is perfectly fine to write "*All **blue** are mortal*" using Predicate Logic, while this sentence construction is grammatically invalid for any adjective. It is another shortcoming in Predicate Logic. This loss of word type information illustrated by an example in Prolog: In *father(john,paul)*, proper nouns "*John*" and "*Paul*" are degraded to typeless objects.

Let's consider the following equation: "*Every car has an engine*" equals to "*An engine is part of every car*". I claim this equation is true for every noun. However, unaware of word types, people try to prove this claim wrong by using a proper noun, like: "*John has a son*" equals to "*A son is part of every John*".

So, despite of using different types in common programming languages – such as booleans, integers and strings – the same people are ignorant of the function of the different word types when it comes to reasoning.

The Linguistic Algebra that I used in the challenge I launched to beat my natural language reasoner repairs both problems: Preserving the word type as well as reasoning beyond basic verb "*is/are*". Abbreviations can be used later, in order to make the notation more compact.

2.3.3. Controlled Natural Language / Context-Free Grammar

Controlled Natural Language (CNL) reasoners implement Context-Free Grammar (CFG), which is a kind of Predicate Logic. And because predicate logic is limited to basic verb "*is/are*", also CNL reasoners are limited to reasoning in basic verb "*is/are*".

Context-Free Grammar is said to avoid ambiguity. However, by avoiding ambiguity, it also avoids a few Natural Laws of Intelligence in grammar, which are crucial to reasoning. For example, CNL reasoners – like the one developed by the Attempto project – avoid the use of conjunction "*or*".

Instead of "*Every person is a man or a woman*", a CNL system needs three sentences to describe the same knowledge, avoiding conjunction "*or*":

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

Besides that, CNL reasoners fail to convert a sentence like "*Paul is a son of John*" to "*John has a son, called Paul*" in a generic way:

- First of all, an extra rule must be added: "*If a man(1) is-a-son-of a man(2) then the man(2) has-a-father-called the man(1)*";
- Besides that, a CNL system needs the relation between Paul and John written with hyphens between the words: "*Paul is-a-son-of John*". The outcome has hyphens too: "*John has-a-son-called Paul*";
- Moreover, each and ever relation pair needs to be added manually, for "*daughter*", for "*parent*", for "*child*", for "*sister*", for "*brother*", and so on.

This example makes clear that CNL reasoners fail to integrate reasoning and natural language.

3. The fundamental approach of Thinknowlogy

Since the origin of life is subject to discussion, the starting point of all research involved with the origin of life depends on the world view of the researcher. So, one's world view also effects the way AI and knowledge technology are researched, in regard to the assumed origin of natural intelligence and natural language:

- According to the evolution theory, the origin of intelligence is considered as one of the biggest mysteries. And in regard to the origin of natural language: "One problem makes the topic difficult to study: the lack of direct evidence";

- According to the biblical world view, God is the origin of intelligence and language. God has created laws of nature to make his creation run like clockwork – in a unified, structured and deterministic [3] way – including natural intelligence and natural language. The biblical world view therefore assumes that natural intelligence can be defined in a unifying, fundamental (=natural) and deterministic (=implementable) way. And it assumes that the first human (Adam) was instantly intelligent and directly able to speak after his creation by God. So, the biblical world view assumes that natural intelligence and natural language are related. If so, it must be possible to identify Natural Laws of Intelligence in grammar. And current languages should share a common logic, because according to the bible natural languages have a common origin: "*At one time all the people of the world spoke the same language and used the same words*" (Genesis 11:1). The languages would have diverged when the tower of Babel was built, when God confused the tongues: "*Come, let's go down and confuse the people with different languages. Then they won't be able to understand each other*" (Genesis 11:7).

The one with the world view nearest to the way nature works, will have the best results.

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3 deterministic: "the doctrine that all facts and events exemplify natural laws"

3.1. Natural intelligence

In order to contribute to science, the scientific method needs to be applied, starting with a unifying, fundamental (=natural) and deterministic [4] (=implementable) definition:

Natural intelligence basically means: **self-organization**. It 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**.

3.2. Natural Laws of Intelligence in grammar

Grammar provides information to our brain how to structure the gained knowledge. These clues include specific words for grouping, separating, archiving and planning (see definition of natural intelligence). By utilizing these clues provided by grammar – or Natural Laws of Intelligence in grammar – we are able to implement a self-organizing knowledge technology, similar to the way nature works:

- Conjunction "*and*" has the intelligent function in language to group knowledge;
- Conjunction "*or*" has the intelligent function in language to separate knowledge;
- A definite article (in English: "*the*") has the intelligent function in language to archive knowledge;
- An indefinite article (in English: "*a*") defines a structure;
- 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 from:
- Paragraph Merged Conclusion of the In simple words document;
- Paragraph 2.3.1 Specification Substitution Conclusions of the Theory document.

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.

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4 deterministic: "the doctrine that all facts and events exemplify natural laws"

3.2.1. Example: Autonomous generation of questions

Not a single technique in the field of AI and knowledge technology is able to implement this example of automatic generation of questions:

> Entered: *"Every 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*" has an intelligent (self-organizing) function in language, to separate knowledge;
   - Given "*Every 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?*".

3.2.2. Improve your ontology system towards a grammar-based approach

Why wait for scientists to accept a grammar-based approach? You can improve your own ontology system gradually towards a grammar-based approach:

   - Start to implement the Linguistic Algebra listed in the challenge I launched to beat my natural language reasoner;
   - Expand your Linguistic Algebra by implementing the reasoning constructions – listed in the design document – that are not listed in the challenge document;
   - Contact me for more improvements.

3.3. Intelligence – more into depth

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:

- Creation starts with grouping;
- Understanding starts with separating;
- Omitting starts with archiving;
- Governing starts with planning;
- Anticipation starts with foreseeing;
- Improvement starts with learning from mistakes.

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

3.3.1. Definition of autonomy

In the definition of natural 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*".

3.3.2. IQ test

When comparing the assignments of an IQ test to the definition of natural 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?

3.4. 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.
In nature (grammar), knowledge and logic are combined: • Keywords contain knowledge; • Non-keywords contain rules how to structure the knowledge.	Knowledge technology: Applying smart algorithms to keywords, and ignoring the intelligent function of non-keywords.
Natural meaning: to independently group, separate, archive and plan.	Trying to reconstruct the meaning by linking keywords.
Integration of disciplines: > Entered: *"Every 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 not scientific

Any Code of Conduct on scientific research endorses: *Science is observable, testable, repeatable and falsifiable*. However, the evolution theory and its derivative theories are not observable, and therefore not testable, repeatable and falsifiable. Examples:

- String theory, the assumed strings can't be observed by definition;
- Dark energy theory, the assumed dark energy can't be observed by definition;
- Dark matter theory, the assumed dark matter can't be observed by definition;
- Black hole theory, the assumed black holes can't be observed by definition;
- Multiverse (multi-universe) theory, the assumed multiverse can't be observed by definition;
- Oort cloud theory, the assumed Oort cloud isn't located, and can't therefore be observed;
- Extraterrestrial life theory, the assumed extraterrestrial life isn't located, and can't therefore be observed;
- Inflation theory, the assumed inflaton particles can't be observed;
- Macro-evolution theory or Transition of Kinds theory – like the assumed transitions from microbe to vegetation and from vegetation to animal – can't be observed due to the assumed hundreds of millions of years that it would take before another kind emerges.

Assuming that intelligence and language evolved from chaos, the field of AI and knowledge technology is deeply based on evolution theory. Not being observable – and therefore not testable, not repeatable and not falsifiable – the evolution theory and its derivative theories are not scientific, by which also the field of AI and knowledge technology is not scientific.

4.1. In contradiction with laws of nature and natural intelligence

The evolution theory contradicts with the laws of nature, and with natural intelligence. Because the evolution theory assumes that everything has emerged from chaos, while the laws of nature represent order, structure, rules and unity. And natural intelligence represent a planning, a goal and a direction, while these entities contradict with the opinion of profound evolutionist Richard Dawkins, that evolution has no order, no rules, no plan, no goal, no direction.

To illustrate: Macro-evolution – the heart of the evolution theory – is in direct conflict with the Second Law of Thermodynamics, and the Big Bang theory is in direct conflict with the First Law of Thermodynamics. Moreover, the Big Bang theory states that the speed of light can be broken, while Albert Einstein proved that the speed of light can't be broken.

In fact, both the evolution theory and its derivative theories assume a supernatural entity, able to defy the laws of nature. And a supernatural entity we usually call: a god. So, the evolution theory is a belief, a religion.

Being in contradiction with laws of nature, how will the evolution theory ever contribute in researching the way nature works? Being in contradiction with natural intelligence, how will the evolution theory ever contribute to the field of AI and knowledge technology?

4.2. 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 lies in the past. So, the origin of life 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 can't be part of science.

So, as long as we – humans – fail to create life from dead material, the origin of life can only be believed, because we are not in control of life, like we can control electricity. And as long as evolutionists fail to manipulate the assumed transition of species – for example by provoking the assumed transition of a new kind of creature – the evolution theory is not scientific, because evolutionists are not in control of this assumed process.

Moreover, as long as evolutionists fail to convert a simple sentence like "*Paul is a son of John*" in a generic way to "*John has a son, called Paul*", they are not in control of natural intelligence and natural language.

The origin of life itself can only be assumed or believed, by which the evolution theory (and derivative theories) can't be proven scientifically. The evolution theory is a belief or religion, in the same way as creation by God is a belief or religion.

The evolution theory is nothing more than an interpretation of the past, that fails to contribute to the future. It only contributes to itself.

Wouldn't it be better if scientists stop worshiping the evolution theory, and start researching the way nature works, with an open mind? Isn't that what taxpayers pay them to do?

4.3. On the assumed origin of species

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". Natural Selection is scientifically proven. So, hardly anyone has problems with this phenomenon, which is later called: micro-evolution.

However, at the end of "On the Origin of species", Darwin assumed that Natural Selection might have a *bigger brother* – later called: macro-evolution. Darwin assumed that macro-evolution might explain the origin of species without God as the creator of all. Today, macro-evolution is defined as: "the emergence of new – and increasingly more advanced – functions by random mutations".

It is important to note that Darwin only proved Natural Selection. He didn't prove macro-evolution. And therefore he didn't prove the origin of species, which makes the title of this work misleading.

Nevertheless, even more than 150 years after publication, this assumed process of macro-evolution is not replicated yet in artificial systems. Instead, the definition is downgraded, or denied. So, even from the world view of the evolution theory, the original definition of macro-evolution will not be able to contribute to AI, nor to 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". So, the definition still states: "within **one species** or isolated population".

4.4. Overwhelming evidence...

It is said that there is "overwhelming evidence" for the evolution theory. In the same way, there is "overwhelming evidence" for the existence of Santa Claus too, based on facts:

- Advertisements forecast his coming;
- Then he appears everywhere at once;
- Presents are given;
- His address is known: North pole 1;
- You can meet him in person;
- And if you post/mail/text/app a message, you will get a response.

So, Santa Claus must be alive, until you dive deeper into the fairy tale…

4.5. 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).

4.6. 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.

4.7. Self-organizing systems

A lot of evolutionists seem fascinated by self-organizing systems, and assume that a lot of artificial systems are self-organizing. But is that true?

The prefix "self" of "self-organizing" deeply refers to the natural origin of the observed system: "organizing by nature". So, if an artificial system is able to organize, it only deserves the prefix "self" if it implements the involved laws of nature. Otherwise, the organizing capabilities of that system are designed and implemented by humans (intelligent design). Such a system is "programmed to organize". It is not "self-organizing" (organizing by nature).

In order to find the laws in nature involved with organization, we should define intelligence in a unifying, fundamental (=natural) and deterministic (=implementable) way. Because intelligence is synonym to self-organization.

Nevertheless, let's put some topics to the test:

- Genetic algorithms are certainly not self-organizing. In contrary, these algorithms are designed to search in an unorganized way: at random. So, genetic algorithms have nothing to do with intelligence;

- Evolutionary algorithms are not self-organizing, because they are designed to find an optimum value. They don't implement the laws of nature involved with intelligence, like grouping, separating and archiving;

- The test set of an Artificial Neural Network – not the involved laws of nature – determines whether fuzzy data is grouped, separated and archived in an ANN. 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 certainly not self-organizing 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, without showing any active capability. 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 and swarm robots show the **behavior** of living creatures. But the conditions are programmed upfront. To illustrate: A flight simulator simulates the **behavior** of flight, without leaving to room. Adding random, doesn't provide Artificial Life simulations any of the active capabilities of intelligence. It is just another variety on the same theme.

4.8. Complex systems

A lot of evolutionists seem fascinated by complexity. Some even seem to strive for it, in the hope to invoke macro-evolution. However, striving for complexity defies all rules of common sense:

- "*The ability to simplify means to eliminate the unnecessary so that the necessary may speak*" (Hans Hofmann);
- "*Things should be as simple as possible, but no simpler*" (Albert Einstein);
- "*If you can't explain it simply, you don't understand it well enough*" (Albert Einstein);
- "*Any intelligent fool can make things bigger, more complex, and more violent. It takes a touch of genius – and a lot of courage – to move in the opposite direction*" (Albert Einstein).

If an observer considers a system to be complex, it is the observer who lacks overview and knowledge. (Only if the observer considers the system unnecessarily complex, he/she has a better overview than the designer of that system.)

Natural language is considered to be a complex system, too complex to be processed by current techniques. However, an example like the Autonomous generation of questions doesn't exceed secondary school level. So, it must be a lack of overview and knowledge of scientists, by which they fail to understand the childishly simple meaning (intelligent function) of conjunction "*or*".

4.9. Super-intelligence (machines surpassing human intelligence)

A lot of evolutionists seem fascinated by the assumption of super-intelligence, machines surpassing human intelligence. But first we need to distinguish machines surpassing human **capabilities** (in a limited domain) from machines surpassing human **intelligence**.

Surpassing human capabilities (in a limited domain): I guess, most people will agree that machines are already able to surpass human capabilities. Chess computers are able to beat humans in playing chess and bulldozers are able to move a greater amount of sand than humans. In the same way, computers are able to beat humans in performing calculations.

But each of these machines is only able to beat humans in a limited domain. No one has yet invented a chess playing bulldozer – or a chess computer able to move sand – in order to beat humans in both playing chess and in the amount of moved sand. It is possible. But integrating surpassing capabilities of both domains is useless and unpractical.

Moreover, when designs of multiple domains are integrated, the overall design is weaker than the individual designs. For example: Once in a while people try to combine a car and an airplane. They try to build a car able to fly, or a road-legal airplane. It is possible, but its design is very weak. Cars are designed to obey the laws of nature involved with driving on the road, while airplanes are designed to obey the laws of nature involved with flight. It is very

hard to combine both designs, obeying the laws of nature involved with driving on the road as well as flying through the air.

Surpassing human intelligence: A lot of evolutionists in this field are convinced that computers will one day surpass human intelligence, because it is deeply based on the evolution theory: "microbes → vegetation → animals → humans → What's next? Super-intelligent computers?". Some even fear the emergence of super-intelligence.

The evolution theory is the only religion to spread this fear. Judaism, Christianity and the Islam officially believe that respectively Yahweh, God and Allah has created life and the universe. Hinduism and Buddhism have no explanation for the origin of life and the universe. In search for an answer to this question, a lot of them combine their religion with the religion of evolution, including the fear for the emergence of super-intelligence.

A few reasons why super-intelligence is not possible:

- AI is researched using cognitive science. Cognitive science delivers a behavior model, which is a simplification of a complex system. When a behavior model is implemented in machines, it only delivers a simulation of behavior – focused on user experience – in the same way as a flight simulator delivers user experience: A flight simulator moves pixels on the screen, and it moves the cones of the speakers. But we all know: A flight simulator will not leave the room, because it isn't a real airplane. In the same way, **AI researched using cognitive science doesn't implement natural intelligence** – let alone super-intelligence – for the simple reason that scientists fail to define intelligence in a unifying, fundamental (=natural) and deterministic (=implementable) way;

- But let's assume that super-intelligence is possible because of Moore's Law. In that case, super-intelligence will first operate in slow-motion, and getting pace later on. Then we have enough time to "pull the plug";

- And what if a robot gets out of control? Robots are machines, which have a manufacturer. So, it will be same as any other machine getting out of control: You switch it off and sue the manufacturer for delivering an unsafe product;

- Moreover, although we – humans – are generally intelligent, we are subject to laws of nature, by which we are limited to design machines for one kind of task. So, we are unable to design general intelligence. It requires divine capabilities – able to break the laws of nature – to design general intelligence. This proves that we have a divine origin.

4.9.1. 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.

[John Searle](#) is right on his [Chinese room thought experiment](#) that computers will never have a mind and consciousness. But he also claims that computers can at best simulate intelligent conversations. So, he didn't think of the possibility that Natural Laws of Intelligence in grammar can be utilized to artificially implement natural intelligence in computers in regard to natural language. Assuming that "understanding" is the ability to organize knowledge autonomously, his argument that "*if there is a computer program that allows a computer to carry on an intelligent conversation in a written language, the computer executing the program would not understand the conversation either*" shows the limitation of his mind.

4.10. 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 has evolved from **chaos**;

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

- Besides that, the evolution theory doesn't provide a clear explanation for the existence or emergence of laws of nature. So, the evolution theory also doesn't provide an explanation for the existence of Natural Laws of Intelligence in grammar, billions of years after the assumed Big Bang;

- Moreover, 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 evolved independently, without common origin.

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

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 seem 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 wives, all eight were united in their boat, while the surface of the Earth was flooded with water).

Testimony: I don't have this wisdom of myself

Around the age of 8 to 10, God asked me if I wanted to become rich or wise. I chose wisdom, because I liked the stories about the wisdom of King Solomon. (It wasn't a catch-question: If I had chosen wealth, I had to give everything away, like I give away the results of my wisdom now.)

A few years later, around the age of 12 to 14, I offered my life to God (as in giving up my own life and desires, and dedicating my life to Him). Nothing special happened after that. I became just another Software Tester. I am talented in software testing, but my talent has its limits. I am not a genius.

A few years ago, God gave me the assignment to prove the evolution theory wrong, which I have accepted. And as promised, God feeds me wisdom as long as I work on this project. The only goal: to prove the evolution theory wrong. If I use the given wisdom for my own good, it will be taken from me.

While I was criticizing the current approach to AI and knowledge technology on LinkedIn for not having a (natural) foundation, nor a (natural) definition of intelligence, someone asked me what definition I used. Then I had to admit to myself that I didn't have a definition of intelligence either. I prayed and ask for an answer: Ten minutes later, I could write down a unifying, fundamental (=natural) and deterministic (=implementable) definition of intelligence provided by God. Later I also discovered how this definition is related to language through Natural Laws of Intelligence in grammar.