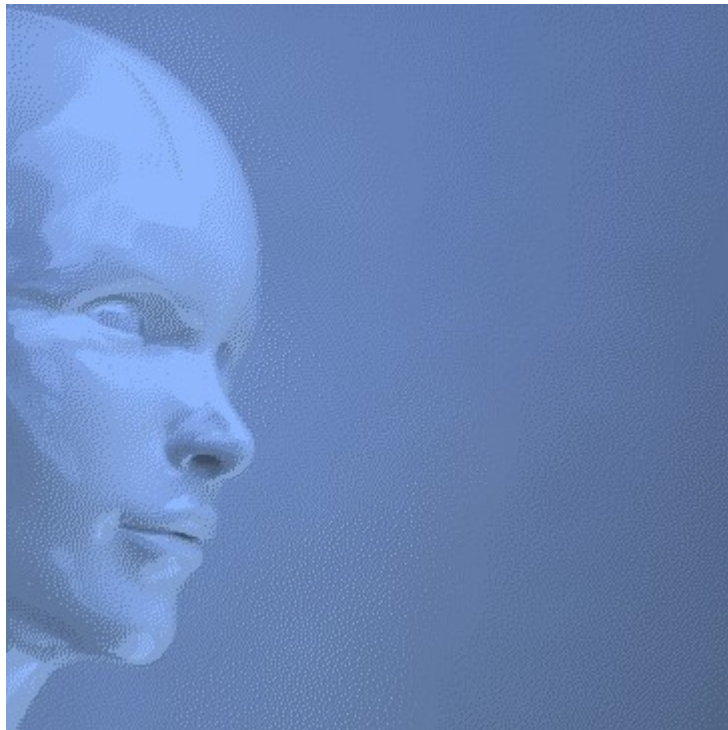


The Logic of Language

Reverse-engineering the language center of our brain, by the discovery of Laws of Intelligence that are naturally found in the Human Language



"Faith is like a signpost. True faith will show the right way – the way nature works – also in science. A false faith will point the wrong way. And atheists will get lost."

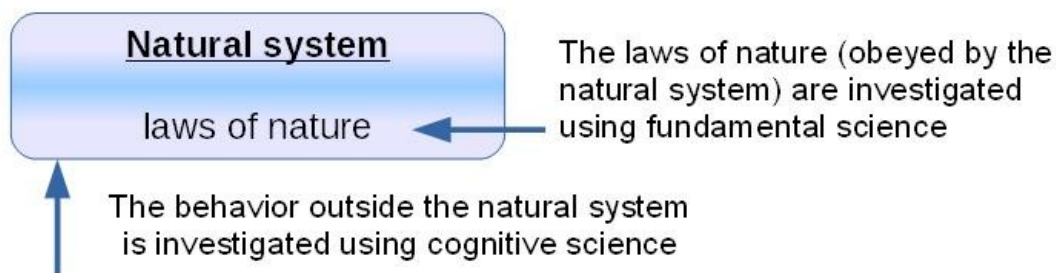
Table of Contents

Introduction.....	3
1. The current approach to AI and NLP – and how it fails.....	4
1.1. Fiction, engineering and science.....	5
1.2. Evolutionary intelligence.....	6
1.3. Autonomous systems.....	6
1.4. Artificial / Deep-learning Neural Networks.....	7
1.4.1. Deep-learning networks applied to natural language.....	8
1.5. Fundamental flaw in NLP.....	8
1.5.1. Blind spot in NLP.....	9
1.5.2. Fundamental flaw in the Turing test.....	10
1.6. Predicate Logic.....	11
1.6.1. Controlled Natural Language.....	12
1.6.2. The function of word types in reasoning.....	13
2. The fundamental approach of Thinknowlogy.....	14
2.1. Natural intelligence, giftedness and talent, knowledge and skills.....	15
2.2. Natural intelligence.....	16
2.3. Laws of Intelligence that are naturally found in the Human Language.....	17
2.3.1. Example: Autonomous generation of questions.....	18
2.3.2. Improve your ontology system towards a grammar-based approach.....	18
2.4. Intelligence – more into depth.....	19
2.4.1. Autonomy / independently.....	20
2.4.2. IQ test.....	20
2.5. Universal Grammar theory.....	21
2.6. Other sources of intelligence.....	22
3. A fair practice of science.....	23
3.1. Overwhelming evidence.....	25
3.2. If you do not believe in cows.....	25
3.3. Mona Lisa.....	25
3.4. Self-organizing systems.....	26
3.5. Complex systems.....	26
3.6. Super-intelligence (machines surpassing human intelligence).....	27
3.6.1. Spreading fear for super-intelligence.....	28
3.6.2. Free will and morality.....	28
Testimony: I don't have this wisdom of myself.....	29
Appendix: Genesis hidden in the Chinese language.....	30

Introduction

The field of Artificial Intelligence (AI) and Natural Language Processing (NLP) has fundamental problems since its start:

1. Intelligence and language are natural phenomena. Natural phenomena obey laws of nature. And laws of nature are investigated using [fundamental science / basic research](#), while the field AI and NLP is researched using [behavioral / cognitive science](#). A cognitive approach delivers a simulation of behavior. For example, a flight simulator, while a fundamental approach delivers an artificial implementation that obeys the involved natural laws. For example, an airplane;



2. A fundamental science has a foundation in nature, which leads to generic solutions. But due to its cognitive approach, the field of AI and NLP has no foundation in nature, nor a definition based on nature. Without foundation in nature, this field is baseless. And being baseless, this field is limited to the **engineering of specific solutions to specific problems**;
3. As a consequence, in knowledge technology, **artificial structures** are applied to keywords, while the **natural structure** of sentences is ignored. By ignoring the structure that is provided by nature, the field of NLP got stuck in the processing of “bags of keywords”, while scientists are unable, unwilling or forbidden to define the logical functions of even the most basic word types, as described in my [scientific challenge](#);
4. Moreover, a science integrates its disciplines, while in the field of AI and NLP, scientists are unable, unwilling or forbidden to integrate (automated) reasoning and natural language. In other words, this field has a blind spot:
 - [Chatbots](#), [Virtual Assistants](#) and [Natural Language Generation \(NLG\) techniques](#) are unable to reason logically. They are limited to select human-written sentences, in which they may fill-in keywords on the blanks;
 - Reasoners like [Prolog](#) are able to reason logically. But their output is limited to keywords, unable to express their results in automatically constructed sentences. As a consequence, laymen are unable to use this kind of reasoner;
 - Controlled Natural Language (CNL) reasoners are able to reason logically. And they are able to write their results as readable sentences, by which laymen are able to use this kind of reasoner. However, CNL reasoners – other than mine – are limited to sentences using verb “[is/are](#)” in the present tense. And they don’t implement for example conjunction “[or](#)”, related to the logical XOR (Exclusive OR) function.

1. The current approach to AI and NLP – and how it fails

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 obeys the the Laws of Physics regarding to flight. So, apparently, using the laws of nature is a fundamental approach, whilst being “inspired by nature” isn't.

This situation is illustrative for the field of AI and NLP:

- This field is lacking a unifying, fundamental (=natural) and deterministic (=implementable) definition of intelligence, and the understanding how natural intelligence and natural language are related;
- Without natural definition, this field is lacking a natural foundation;
- Without foundation, the techniques developed on AI and NLP are in fact baseless. And without one common (=natural) foundation, its disciplines – like automated reasoning and natural language processing – can not be integrated;
- Being baseless, AI got stuck at a simulation of behavior (not necessarily intelligent behavior), and NLP got stuck at linking of keywords;
- As a consequence, AI and NLP are limited to programmed and trained intelligence.

Even almost 2,400 years after [Aristotle](#)'s work on logic, and almost 170 years after the publication of “[The Laws of Thought](#)” by [George Boole](#), scientists are still unable, unwilling or forbidden to convert a sentence like “[Paul is a son of John](#)” to “[John has a son, called Paul](#)” – and vice versa – in a generic way (=through an algorithm).

Both sentences have the same meaning. So, it must be possible to convert one sentence to the other – and vice versa – as explained in 1.5.2. Fundamental flaw in the Turing test. However, such a conversion requires to understand what natural intelligence is.

Common knowledge:

- If problems are fundamental, one needs to repair the foundation. Actually, it is better to remove the old foundation, and to pour a new one;
- If two disciplines have different foundations, they can't be integrated, because a building can only have one foundation. If another foundation would be poured next to an existing one, both foundations will move relative to each other. Then the expanded building – resting on both foundations – will prolapse, and eventually collapse.

Using a fundamental approach – based on laws of nature – will deliver significant progress, while it will be fundamentally different from a [behavioral / cognitive approach](#).

1.1. Fiction, engineering and science

Fact-checking is extremely rare in the field of AI and NLP.

Fact: Scientists are unable, unwilling or forbidden to define intelligence as a set of natural laws.

Being unable, unwilling or forbidden to define intelligence, AI is not an artificial implementation of natural intelligence. As a consequence, AI is **not scientific**. Instead, AI is just **clever engineering**. Therefore, this field is limited to deliver specific solutions to specific problems.

Being unable, unwilling or forbidden to define intelligence, a lot of Science **Fiction** stories are told on AI. This video on YouTube separates engineering from the Science Fiction stories told on AI: “[How Intelligent is Artificial Intelligence? - Computerphile](#)”.

Also the field of NLP is **not scientific**. Because scientists are unable, unwilling or forbidden to derive new knowledge from sentences in natural language and to write the derived knowledge back to readable sentences in natural language. It proves that scientists don’t understand what natural language is ¹.

Only Controlled Natural Language reasoners are able to close the loop: [natural language](#) → [logic](#) → [natural language](#). Because only CNL reasoners are able to read sentences (with an extremely limited grammar), to derive new knowledge, and to write the derived knowledge in self-constructed sentences (with an extremely limited grammar).

CNL reasoners are based on Predicate Logic, which describes the intelligent function of basic verb “[is/are](#)” in a generic way, in the way nature works. So, CNL reasoners work in the way nature works regard to verb “[is/are](#)”. Therefore, they deliver a generic solution. And therefore, they are **scientific**.

However, Predicate Logic – and thus CNL reasoners – is limited to logic expressed with basic verb “[is/are](#)”. Scientists are for example ignorant of the intelligent function in language of possessive verb “[has/have](#)”. Instead of implementing this intelligent function in artificial systems – which would deliver a generic solution – scientists teach us to hard-code knowledge containing this verb directly into a reasoner or a knowledge base, like: [has_son\(john,paul\)](#). This is again **engineering** – a specific solution to a specific problem – instead of [fundamental science](#).

1 The field of electromagnetism is scientific – understood – because scientists are able to close the loop for electricity, magnetism, movement and light. Scientists are able:

- to convert electricity to light, and to convert light back to electricity;
- to convert electricity to magnetism, and magnetism back to electricity;
- to convert electromagnetism to movement, and movement back to electromagnetism.

However, scientists are unable, unwilling or forbidden to close the loop for natural language and logic, because they are ignorant of the logical structures of natural language.

1.2. Evolutionary intelligence

First of all, the development of any technology – including Artificial Intelligence (AI) – requires by definition (human) intelligence and a structured approach, while the theory of evolution doesn't support any intelligent influence, nor any structured approach. So, the theory of evolution doesn't apply to the development of technology (like AI).

In the same way, the theory of evolution doesn't apply to the development of Evolutionary Algorithms / Programming and Genetic Algorithms / Programming: Both techniques are obviously algorithms. Algorithms are intelligently designed by definition ² – using a structured approach – while the theory of evolution doesn't support any intelligent influence, nor any structured approach.

Nevertheless, Evolutionary Algorithms are useful though for finding an optimum value. They are comparable to the [PID Controller](#) – found in ordinary central heating systems – which optimizes the burning time in order to avoid *undershoot* and *overshoot*.

1.3. Autonomous systems

We should separate *autonomous systems* from *autonomously intelligent systems*:

Autonomous systems: Mars rovers, autonomously flying drones and self-driving cars are examples of autonomous systems. They are able to use 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: Language 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 in language: It is used by our brain to separate knowledge, in this case to separate the words “[man](#)” and “[woman](#)”.

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

2 algorithm: “[any set of detailed instructions which results in a predictable end-state from a known beginning](#)”

1.4. Artificial / Deep-learning Neural Networks

First of all, neurons are not essential to intelligence, in the same way as feathers and flapping wings are not essential to aviation. So, neurons themselves are not the source of intelligence.

Scientists are unable, unwilling or forbidden to define intelligence as a set of natural laws. Without a natural definition of intelligence, AI is limited to engineering: specific solutions to specific problems. **Artificial Neural Networks** (ANN) are engineered to store an average pattern, based on a training set of patterns. As a consequence, the use of ANNs is limited to pattern recognition. And the use of **Deep-learning Neural Networks** (DNN) is limited to perform trained tasks, based on pattern recognition.

ANNs are lacking the logic implemented by natural intelligence. As a consequence, human intelligence (natural intelligence) is required to select the patterns of the training set. Humans are therefore the only naturally intelligent factor in pattern recognition. Not the ANN. The word “[learning](#)” is therefore a misfit term when used in regard to an ANN. To illustrate:

We don't have to feed a child thousands of pictures of a cat before a child is able to recognize a cat. One example of a cat may be sufficient for a child to distinguish this type of animal from other types of animal. At the moment the child sees another cat, it will point to the animal and ask “[Cat?](#)”, in order to get a confirmation that it has learned to distinguish this type of animal from other types of animal correctly.

My father taught me: “[Don't become a monkey that learns a trick](#)”. DNNs are engineered to perform a trick, based on pattern recognition. DNNs are lacking natural intelligence. So, they don't understand the essence of the task. Therefore, they need to be trained. Human intelligence (natural intelligence) is required to design the algorithms that describe the essence of the task. After a lot of training runs, the DNN has mastered to perform that trick, without understanding the essence of the task. Having designed the training algorithms, humans are the only naturally intelligent factor in performing the trained trick of a DNN. Not the DNN itself. The word “[learning](#)” is therefore also a misfit term in regard to a DNN. To illustrate:

We don't need to play a game thousands of times, before a child is able to play that game. Explaining the rules of the game may be sufficient for a child to play a game, while the rules of a game can't be explained to a DNN.

In our brain, pattern recognition doesn't provide the intelligence itself. Pattern recognition only provides the input for the intelligent (=hard-coded) brain. Self-driving cars work in a similar way: Pattern recognition provides the input on which the programmed logic responds.

The only way to improve pattern recognition in machines: To identify individual parts of each object, like the left ear of a cat, its right ear, its nose, its whiskers, its mouth, its tail, each eye, each leg, and so on.

1.4.1. Deep-learning networks applied to natural language

Deep-learning networks are able to recognize and to produce patterns of a language. But they are unable to grasp the meaning expressed by humans through natural language, because

Natural language is like algebra and programming languages: It has “variables” (keywords) and “functions” (structure words).

In natural language, keywords – mainly nouns and proper nouns – provide the knowledge, while the logical structure of sentences is provided by words like definite article “**the**”, conjunction “**or**”, basic verb “**is/are**”, possessive verb “**has/have**” and past tense verbs “**was/were**” and “**had**”.

However, deep-learning networks are not hard-wired to process logic. So, this technique is unable to process the logic that is naturally found in language. And therefore, this technique is unable to grasp the deeper meaning expressed by humans through natural language.

Deep-learning networks are based on pattern recognition. And therefore, they are limited to perform tasks based on pattern recognition.

1.5. Fundamental flaw in NLP

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 NLP is very bad:

- Rich and meaningful sentences *in*;
- Artificially linked keywords *out*.

During the NLP process, the logical structure of the sentences is lost, like a two-dimensional movie has lost the three-dimensional spatial information. To prove this loss of the logical structure – and the poor state of the current approach to NLP: You will not find any system – other than Thinknowlogy – able to convert a sentence like “**Paul is a son of John**” to “**John has a son, called Paul**” – and vice versa – in a generic way (=through an algorithm).

Both sentences mentioned above have the same meaning. So, it is possible to convert one sentence to the other – and back – through an algorithm. So, why are scientists unable, unwilling or forbidden to define such an algorithm?

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 quality (=meaning) – requires to understand the Laws of Intelligence that are naturally found in the Human Language. However, not a single scientific paper supports the mentioned conversion in a generic way (=through an algorithm).

In its infancy, Thinknowlogy only accepts a very 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.

1.5.1. Blind spot in NLP

Natural language is like algebra and programming languages:

Natural language has “variables” (keywords) and “functions” (structure words). However, in NLP, only the keywords are used, while the natural structure of the knowledge is discarded. As a consequence, the field of NLP got stuck with “bags of keywords”, which have lost their meaning (=natural structure).

In natural language, keywords – mainly nouns and proper nouns – provide the knowledge, while the logical structure of sentences is provided by words like definite article “[the](#)”, conjunction “[or](#)”, basic verb “[is/are](#)”, possessive verb “[has/have](#)” and past tense verbs “[was/were](#)” and “[had](#)”. My [scientific challenge](#) describes some basic reasoning constructions, based on the logical structure of sentences.

Scientists are ignorant of the logical structure of sentences. Instead of preserving this natural structure, they teach us to throw away the natural structure, and to link keywords by an artificial structure (semantic techniques). Hence the struggling of this field to grasp the deeper meaning expressed by humans, and the inability to automatically construct readable sentences from derived knowledge (automated reasoning in natural language).

As a consequence, this field has a blind spot on the conjunction of logic and language.

A science integrates its involved disciplines. However, the field of AI and NLP doesn't integrate (automated) reasoning and natural language. There are roughly three categories in this field involved with natural language and/or reasoning. However, scientists are unable, unwilling or forbidden to integrate them beyond reasoning with verb “[is/are](#)” in the present tense:

- [Chatbots](#), [Virtual Assistants](#) and [Natural Language Generation \(NLG\) techniques](#) are unable to reason logically. They are only able to select human-written sentences, in which they may fill-in user-written keywords;
- Reasoners like [Prolog](#) are able to reason logically. But they only have keywords as output. So, their results can't be expressed in automatically constructed sentences. As a consequence, laymen are unable to use this kind of reasoner;
- Controlled Natural Language (CNL) reasoners are able to reason logically in a very limited grammar. But they are able to autonomously construct sentences, word by word.

In order to uplift this field to a [fundamental science](#), the following three steps are required to close the loop for reasoning in natural language:

1. Conversion from a sentence in natural language to an almost language-independent knowledge structure;
2. Logical reasoning applied to the almost language-independent knowledge structure;
3. Conversion of the result of the reasoner – the derived knowledge – to a readable and autonomously – word by word – constructed sentences.

Only CNL reasoners tick all boxes mentioned above for reasoning in natural language. However, they are limited to sentences with verb “[is/are](#)” in the present tense. So, they don't accept,

implement and use structure words like definite article “[the](#)”, conjunction “[or](#)”, possessive verb “[has/have](#)” and past tense verbs “[was/were](#)” and “[had](#)”.

Some people believe that meaning will evolve “by itself” (see Evolutionary intelligence), while others believe that the meaning is preserved by parsing all words of a sentence. But they all fail to integrate reasoning and natural language beyond verb “[is/are](#)” in the present tense.

1.5.2. Fundamental flaw in the Turing test

The [Turing test](#) has a fundamental flaw: The quality of the jury isn't specified. So, any chatbot can pass the Turing test if a jury is selected who is easily impressed, or if the subject (chatbot) is presented to the jury as a foreign child who may have problems to understand the given sentences, by which the jury becomes biased through compassion for the ‘child’.

Besides that, chatbots are unable to reason logically. So, it is extremely simple to determine whether the subject is a person or chatbot: Let the subject perform an intelligent reasoning task, as described in my [scientific challenge](#) to beat the simplest results of my Controlled Natural Language reasoner.

For example, provide the subject with a sentence like “[Paul is a son of John](#)” and the following algorithm:

- Swap both proper nouns;
- Replace basic verb “[is](#)” by possessive verb “[has](#)” (or vice versa);
- Replace preposition “[of](#)” by adjective “[called](#)” (or vice versa).

Now ask the subject to apply the given algorithm to the given sentence, which should result in a different sentence with the same meaning. The outcome must be: “[John has a son, called Paul](#)”, as described in [the first block](#) of my [scientific challenge](#). To be sure, ask the subject to apply the given algorithm in the opposite direction, to convert “[John has a son, called Paul](#)”. The outcome must be of course: “[Paul is a son of John](#)”.

Not a single scientific paper supports the conversion a sentence like “[Paul is a son of John](#)” to “[John has a son, called Paul](#)” – nor vice versa – in a generic way (=through an algorithm). So, it would become immediately clear if the subject is a person or a chatbot.

Another way of separating humans from chatbots as a jury, is to only present confusing phrases that are not finished, completely out of context and not related to each other. If the subject initially responds despairingly – and stops responding after a while – then the subject is human. But if the subject keeps responding cheerfully with full sentences, then the subject is a chatbot.

1.6. Predicate Logic

[Predicate Logic](#) (algebra) has a fundamental problem when applied to linguistics: It doesn't naturally go beyond basic verb “to be” in the present tense.

Predicate Logic (algebra) describes logic expressed by present tense verb “is/are” in a natural way. But it doesn't describe the logic of the **complimentary function** of verb “is/are”, namely verb “has/have”. Neither does it describe the logic of their **past tense functions**, namely verb “was/were” and verb “had”. As a consequence, automated reasoners are unable to read and write sentences with possessive verb “has/have” and with past tense verbs “was/were” and “had”. Apparently, Predicate Logic (algebra) is not yet equipped to process linguistics.

A lot of structure words (non-keywords) have a naturally intelligent function in language. However, their naturally intelligent function is not described in any scientific paper. Apparently, scientists don't understand their naturally intelligent function in language.

Being unable, unwilling or forbidden to describe possessive logic in a natural way, another workaround is created, by adding possessive logic in an artificial way:

- Possessive logic must be programmed directly into the reasoner, like “has_son(john,paul)”;
- Besides that, lacking a generic solution, the same logic needs to be programmed for each and every new noun. So, separate functions must be programmed for “has_daughter”, “has_father”, “has_mother”, “has_teacher”, “has_student”, and so on;
- Moreover, in order to enable multilingual reasoning, all existing knowledge described in one language, needs to be translated to each and every new language.

This is engineering (specific solutions to specific problems) instead of fundamental science (a generic solution). Actually, it is a bad example of engineering. So, we need to uplift the field of AI and NLP from engineering towards a [fundamental science](#).

1.6.1. Controlled Natural Language

Controlled Natural Language (CNL) reasoners allow users to enter Predicate Logic in natural language-like sentences. However, Predicate Logic doesn't go naturally beyond the present tense of basic verb "to be". So, also CNL reasoners don't go naturally beyond verb "is/are".

As a consequence, CNL reasoners are unable to convert a sentence like "Paul is a son of John" to "John has a son, called Paul" – and vice versa – in a generic way (=through an algorithm), because the latter sentence contains verb "has". As a workaround, this conversion needs to be programmed for each and ever relationship:

- First of all, a rule must be added: "If a man(1) is-a-son-of a man(2) then the man(2) has-a-son-called the man(1)";
- In order to trigger this rule, the relationship between "Paul" and "John" needs to be written with hyphens between the words: "Paul is-a-son-of John". And the outcome will also contain hyphens: "John has-a-son-called Paul";
- And the above must be repeated for each and ever similar noun: for "daughter", for "father", for "mother", for "teacher", for "student", and so on.

This engineered workaround is clearly not generic, and therefore not scientific.

Besides that, while predicate logic describes both the Inclusive OR and Exclusive OR (XOR) function, CNL reasoners don't implement conjunction "or". So, CNL reasoners are unable to generate the following question:

> Given: "Every person is a man or a woman."

> Given: "Addison is a person."

•

• Generated question:

< "Is Addison a man or a woman?"

As a workaround for lacking an implementation of conjunction "or", CNL reasoners need three sentences to describe sentence "Every person is a man or a woman" in a similar way:

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

Even though their workaround sentence "No woman is a man and no man is a woman" describes an Exclusive OR (XOR) function, scientists are still unable, unwilling or forbidden to implement automatically generated questions in a generic way (=through an algorithm).

Both problems mentioned above – the inability to convert a sentence through an algorithm and the inability to generate a question through an algorithm – make clear that scientists are unable – or unwilling – to integrate reasoning (=natural intelligence) and natural language in artificial systems.

Lawyers have no problems to write down logic in legal documents, using natural language. So, why are scientists unable, unwilling or forbidden to integrate logic and natural language in artificial systems?

Legal documents are of course accurate in their description: “**either ... or ...**” is used to describe an **Exclusive OR** function, and the combination “**and/or**” is used to describe an **Inclusive OR** function. In daily life, instead of the combination “**and/or**”, we add “**or both**” to the sentence. In most other cases of conjunction “**or**”, we mean an **Exclusive OR** function.

So, in daily life, “**Coffee or tea?**” – short for “**Either coffee or tea?**” – describes an **Exclusive OR** function, while “**Warm milk or a sleeping pill? Or both?**” describes an **Inclusive OR** function.

Note: In these examples, the conjunction separates a series of words of the same word type. In these cases, a series of singular nouns. But also in imperative sentences like “**Do ..., or you'll have to face the consequences**”, conjunction “**or**” implements an **Exclusive OR** function. Because the sender gives the receiver an exclusive choice: “**Either do ..., or you'll have to face the consequences**”.

1.6.2. The function of word types in reasoning

There is another fundamental problem when Predicate Logic is applied to linguistics: It doesn't specify word types.

For example, instead of “**All humans are mortal**”, it is perfectly fine in Predicate Logic to write “**All blue are mortal**”. But this sentence construction is grammatically invalid for any adjective. It is only valid for plural nouns.

In order to be applicable to natural language, Predicate Logic should describe the word type of each variable. In this case, it should define that the first variable (second word) should be a plural noun, and that the second variable (last word) should be an adjective.

Let's consider the following equation: “**Every car has an engine**” equals to “**An engine is part of every car**”. I state that this equation is true for any singular noun. However, unaware of the function of word types in language, scientists try to prove my fundamental approach wrong by using a proper noun, like: “**John has a son**” equals to “**A son is part of every John**”, which is nonsense of course.

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

The notation of the definitions in the [scientific challenge](#) I launched, repairs both problems: Preserving word type information, as well as reasoning beyond the present tense of basic verb “**is/are**” (see Predicate Logic). Abbreviations can be used later, in order to make the notation compact.

2. The fundamental approach of Thinknowlogy

Since the origin of life is subject to discussion, the starting point of the all research regarding the origin of life is dependent on the world view of the researcher: atheism or creationism. It includes the way natural intelligence, natural language and natural laws are researched. So, it also includes the field of AI and NLP.

- **Atheism:** Despite exhaustive research, atheism still hasn't provided a satisfactory explanation for the origin of natural intelligence, natural language and natural laws. Let alone, how they are related;
- **Creationism:** Creationists will try to find the intelligent design – natural laws – that governs the natural data in a generic way. In delivering a generic solution, the natural data itself isn't important. The problem is where to find – and how to research – the intelligent design – natural laws – that governs the data.

According to the biblical world view, all natural systems are created by God. It includes laws of nature, to make his creation run like clockwork, in a unified, structured and deterministic ³ way. It means that all natural phenomena must obey the laws of nature, and that laws of nature work in a unifying, structured and deterministic (=implementable) way.

Assuming that God's intelligent design includes laws of intelligence, these laws of intelligence will operate in a unifying, structured and deterministic (=implementable) way. Being deterministic (=implementable), these Laws of Intelligence can be implemented in artificial systems, through a process of reverse-engineering.

I have identified the [human language](#) and [spacial information](#) as sources of **natural intelligence**. And because all natural phenomena are designed in a unified way, **natural intelligence** and the **human language** may be related. If so, it must possible to identify the natural laws that are obeyed by language (Laws of Intelligence that are naturally found in the Human Language), by which it is possible to reconstruct the language center of our brain, by a process of reverse-engineering.

Furthermore, according to the biblical world view, life and the universe were all designed once. And no improvements were made afterwards. So – if intelligence and language are related – current languages must still obey the same laws of intelligence as was designed in the beginning, regardless of all their differences ⁴. Then, current languages still must share a common logic.

3 deterministic: “[the doctrine that all facts and events exemplify natural laws](#)”

4 The existence of entirely different languages today, is explained in the bible: “[At one time all the people of the world spoke the same language and used the same words](#)” ([Genesis 11:1](#)). During the building of the tower of Babel, 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](#)).

2.1. *Natural intelligence, giftedness and talent, knowledge and skills*

Scientists are struggling with terms like *intelligence, giftedness, talent, knowledge* and *skills*, because they don't understand their origin:

- natural intelligence is innate, equal for every kind. Intelligently designed by God;
- giftedness and talent are inherited, different for each individual;
- knowledge and skills are learned by each individual.

2.2. Natural intelligence

In order to contribute to science, intelligence need to be defined in a unifying, fundamental (=natural) and deterministic ⁵ (=implementable) way:

Natural intelligence is the natural ability **to organize independently**.

It is the extent to which one is able to independently:

- **group** what belongs together;
- **separate** what doesn't belong together;
- **archive** what is no longer relevant;
- **plan** future actions;
- **foresee** the consequences that the planned actions will have;
- **learn** from mistakes.

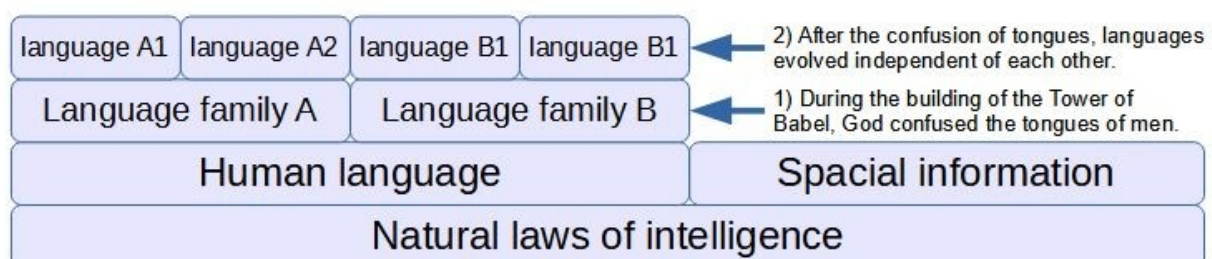
Assuming that natural language is an intelligent system, predictions can be made on the intelligence that will be found in language:

1. Natural language will have self-organizing abilities;
2. In expressing knowledge, the language center of the sender's brain will add clues to the knowledge that is expressed, how the knowledge is organized in the brain of the sender;
3. In receiving knowledge, the language center of the receiver's brain will use the clues that are added to the received knowledge, in order to organize the knowledge in the brain of the receiver.

In all languages, there will be specific words – or word constructions – for:

- **grouping** knowledge that belongs together;
- **separating** knowledge that doesn't belong together;
- **archiving** knowledge that is no longer relevant;
- **planning** future actions;
- **foreseeing** the consequences that the planned actions will have;
- **learning** from mistakes.

Relationship between natural intelligence and the human language



⁵ deterministic: “[the doctrine that all facts and events exemplify natural laws](#)”

2.3. *Laws of Intelligence that are naturally found in the Human Language*

Logical clues that are naturally found in language, provide information to our brain how to structure / organize the gained knowledge. These clues include specific words for [grouping](#), [separating](#) and [archiving](#) (see definition of natural intelligence). By using these clues provided by natural language – which I call: [Laws of Intelligence that are naturally found in the Human Language](#) – we are able to implement a self-organizing (=intelligent) knowledge technology, similar to the way nature works in the language center of our brain:

- Conjunction “[and](#)” has the intelligent function in language to [group](#) knowledge;
- Conjunction “[or](#)” has the intelligent (Exclusive OR) 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, which is [already known](#) for a few centuries;
- Basic verb “[is/are](#)” defines present tense basic logic, which is [already known](#) for a few centuries;
- Basic verb “[was/were](#)” defines [past tense](#) basic logic;
- Possessive verb “[has/have](#)” defines present tense [direct](#) and [indirect](#) possessive logic;
- Possessive verb “[had](#)” defines [past tense direct](#) and [indirect](#) possessive logic.

Besides that, language also provides logical reasoning constructions, as described from paragraph 2.3.1 *Specification Substitution Conclusions* of the [Theory document](#).

These [Laws of Intelligence that are naturally found in the Human Language](#) drive a set of structuring algorithms ⁶ in my system, in order to independently [group](#), [separate](#) and [archive](#) knowledge in its knowledge base.

So, the basics of natural language: Grammar provides language a general structure of separate words, by which the words form a sentence. And [Laws of Intelligence that are naturally found in the Human Language](#) provide language a logical structure of separate words and separate sentences, by which the words and sentences make sense.

Scientists are unable, unwilling or forbidden to define intelligence as a set of natural laws. Therefore, scientists are unable, unwilling or forbidden to add natural intelligence to chatbots, virtual assistants and robots ('bots' for short). As a consequence, *bots* are lacking natural intelligence: Either they are limited to programmed dialogues, or the sentences they produce don't make sense.

⁶ algorithm: “[any set of detailed instructions which results in a predictable end-state from a known beginning](#)”

2.3.1. Example: Autonomous generation of questions

Not a single scientific paper describes automatically generated questions in a generic way (=through an algorithm), like:

> Given: “Every person is a man **or** a woman.”

> Given: “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 Laws of Intelligence that are naturally found in the Human Language are used:

- A [Law of Intelligence that is naturally found in Language](#): Conjunction “or” has the intelligent (Exclusive OR) 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?”.

Note: In most cases, a conjunction separates a series of words of the same word type. In this case, a series of singular nouns.

2.3.2. 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 [scientific challenge](#) I launched to beat the simplest results of my Controlled Natural Language reasoner;
- Then expand your system by implementing the reasoning constructions – listed in the [Theory document](#) – that are not listed in the challenge document;
- [Contact me](#) for more improvements.

2.4. 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 [independently](#):

- [avoid chaos](#);
- [create order](#);
- [restore order](#).

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. Grouping of for example 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.

2.4.1. Autonomy / independently

In the definition of natural intelligence, the word “[independently](#)” is used. So, we need to define that word – or the word actually “[autonomy](#)” – as well:

An autonomous system relies on the consistency of a **natural** source, or a consistent artificial source like GPS ([Global Positioning System](#)). So, an autonomously intelligent system relies on the consistency of a natural source of intelligence.

In contrast, current information systems rely on **artificial** sources of intelligence, like semantic vocabularies, ontology databases and statistics. Only Thinknowlogy uses a natural source of intelligence: language, or more accurate: Laws of Intelligence that are naturally found in the Human Language.

Scientists have no clue how nature works in regard to intelligence and language. So, they implement "something" that looks like nature. But they have no proof that nature works that way. “Inspired by nature”, scientists in this field are engineering specific solutions to specific problems, while a [fundamental science](#) delivers generic solutions. So, I know that their approach is fundamentally wrong.

The "scientific" approach is comparable to an old-fashioned car, in which the driver needs to operate most functions of the car manually, and in which the driver needs to navigate him/herself to an unknown address. My fundamental approach is comparable to a self-driving car, in which more and more functions are automated. It is based on the logic of language, which is a natural – and thus a consistent – source of intelligence.

2.4.2. IQ test

When comparing IQ tests to the above definition of natural intelligence, it becomes clear that IQ tests are focused on the capabilities [grouping](#) and [separating](#). But they are lacking tests for [archiving](#), [planning](#), [foreseeing](#) and [learning from mistakes](#).

But more important than a high IQ score: **Is one's worldview in accordance with 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 those theories can't be applied to daily life? Only theories that are in accordance with the way nature works, can be applied to daily life.

2.5. Universal Grammar theory

In his [Universal Grammar theory](#), [Noam Chomsky](#) proposes that the ability to learn a language is hard-wired in the brain. This theory is heavily debated among evolutionists. But deniers of this theory have no alternative explanation – let alone an artificial implementation – that is supported by experimental evidence.

In my Controlled Natural Language (CNL) reasoner, one set of logical rules – as defined in my [scientific challenge](#) – is configured for multiple languages. So, it implements the Universal Grammar theory with a difference: There is no Universal Grammar, but there are **Universal Rules of Logic naturally found in Grammar**. Or as I would say: There are Laws of Intelligence that are naturally found in the Human Language.

Logic / algebra itself is language independent. And universal rules of logic seem hard-wired in the language center of our brain. When children learn a language, the universal logic – that is naturally found in the language center of their brain – is ‘configured’ for a language, which will be their native language / mother tongue.

My CNL reasoner works in a similar way: By embedding one set of logic / algebra / universal reasoning rules, my reasoner is (almost) language independent. During start-up, the software reads five grammar configuration files, which configure this universal logic for five languages. After start-up, my reasoner is able to read, to reason and to autonomously write – word-by-word constructed sentences – in English, Spanish, French, Dutch and Chinese.

When a sentence is entered, this sentence is converted to a language-independent knowledge structure. Then universal reasoning rules are applied to that knowledge structure. After which, the derived knowledge is written as readable sentences, in the same language as the input sentence.

Semantic techniques require each word to be defined in a words list. But we don’t feed a words list to babies and toddlers either, in order to learn their mother tongue. My CNL reasoner has no extensive words list either. The difference between semantic techniques and the universal logic techniques of CNL reasoners is illustrated by a well-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](#)”. My CNL reasoner only has a few basic words defined upfront. Instead, it has grammar definitions ⁷, and an algorithm ⁸ that determines the word type of each unknown word, like adjective, singular noun and plural noun.

⁷ See download, sub-directory: data/grammar/

⁸ See source code: class *AdminReadCreateWords*, function *createReadWords*

2.6. Other sources of intelligence

Language is not the only source of intelligence. Animals like dolphins, crows and chimpanzees show intelligent behavior regarding to spacial information. So, spacial information is another source of logical information (intelligence). An example:

If a room has only one entrance, and there are no temporary entrances, and there is an object inside that room, then we can conclude: Either that room is built around that object, or that object must have entered the room through that one entrance. So, if we see a classical miniature ship in a bottle, and this bottle has no temporary entrances like a separate bottom, either the bottle is built around that ship, but more likely, the ship has entered the bottle through the bottleneck.

More derived spacial information: The miniature ship consists of multiple components, leaving the audience in awe which of those components were already attached, and which were attached later on. (But its party trick is of course the unfolding of the masts and sails.)

Creating a miniature ship in a bottle requires capabilities of natural intelligence, like [grouping](#), [separating](#), [planning](#) and probably also [learning from mistakes](#). Not only the creator, but also the audience watching the end result, will need capabilities of natural intelligence in order to analyze the problems involved with this peculiar object. A curious person who sees a miniature ship in a bottle for the first time, will not just say “nice” and walk away. Apparently, the laws of nature involved with spacial information are already present in the brain. They will trigger the brain of a curious person when the spacial information doesn’t add up.

Illusionists are masters in hiding aspects of spacial information that are crucial to their trick, by which the spacial information – visible to the audience – doesn’t add up: Objects seem to appear and disappear as if by magic.

I like the artwork of [M.C. Escher](#). He understood the logical structures of spatial information very well. In his artwork, Escher plays with the outer lines of objects like birds and fish. In other artwork, Escher deliberately applied the logical structures of spatial information in a wrong way, by which this artwork seems 'wrong'. Brilliant!

Objects like birds and fish structured in artwork, are like keywords structured in a sentence.

A lot of daily activities – like anticipation in traffic and sports – require capabilities of natural intelligence in order to process a lot of spacial information in a fraction of a second. It includes capabilities like [grouping](#), [separating](#), [planning](#), [foreseeing](#) and [learning from mistakes](#). Experience (training) helps to use as much spacial information as possible within a short time frame. In self-driving cars and trucks, the processing of spacial information is more and more automated to our benefit. In fact, these are also artificial implementations of natural intelligence (within a limited domain). Prefix “[self](#)” in “[self-driving](#)” refers to the natural origin of the spacial information.

3. A fair practice of science

There is only one truth in fundamental science: the way nature works

Nature works in only one way. One who investigates the way nature really works, will be rewarded with their findings being replicated in a controlled environment, and eventually being applied to daily life. In this way, taxpayers will have a Return on Investment in scientific funding.

For centuries, Christians were leading in [fundamental science](#) (Basic research). These scientists observed the way nature — God's creation — works, then replicated their findings in a controlled environment, after which their findings could be applied to daily life, in fields like physics ([Isaac Newton](#) and [Arthur Compton](#)), mathematics ([Leonhard Euler](#) and [Bernhard Riemann](#)), chemistry ([Robert Boyle](#) and [Antoine Lavoisier](#)), electromagnetism ([Alessandro Volta](#), [Michael Faraday](#) and [James Clerk Maxwell](#)), computer science ([Charles Babbage](#) and [George Boole](#)), and genetics ([Gregor Mendel](#) — who is called "father of modern genetics" — and [Ronald Fisher](#)). By applications to daily life — based on their findings — Christian scientists provided Return on Investment to taxpayers, which we still benefit from today.

Belief can complement science

Science is about observed phenomena, while belief is about unobserved phenomena. However, one whose belief describes the best the way nature works, will have a strong advantage in [fundamental science](#). In this way, belief can complement science.

One who investigates nature, investigates God's creation

Nowadays, atheists are leading in some fields of science. Atheism is an ideology. Their ideal: *There is no God*. So, the atheistic ideology is a belief system based on the hope that God doesn't exist. However, one who investigates the way nature works, investigates God's creation. As a consequence, atheists are practicing a kind of [historical science](#) rather than [fundamental science](#): All hypotheses of the atheistic ideology can be traced back to hypothetical past events, mainly the [Big Bang hypothesis](#) and [Darwin's common descent evolutionary hypothesis](#). As such, referring to these hypothetical past events — as well as the dating of their hypothetical findings — appears to be crucial, in order to contribute to the atheistic ideology. Such references to the atheistic ideology are found in all literally their publications, like in press releases (news items), online articles (like on Wikipedia), nature documentaries, study books, and so-called scientific publications. Such a practice is called: propaganda.

Not a single hypothesis of the atheistic ideology will ever be applied to daily life

Not being based on the way nature works, not a single hypothesis of the atheistic ideology will ever be (honestly) replicated in a controlled environment, let alone be applied to daily life:

- Atheists are unable to replicate the [Big Bang hypothesis](#) — let alone to apply this hypothesis to daily life — because they are unable to create everything from nothing;
- Atheists are unable replicate a [spontaneous appearance of life from non-living matter](#), because laws of nature prevent life from being created from non-living matter. For example, oxygen will oxidize — destroy — amino acids before life is created. So, atheists

are unable to apply this hypothesis to daily life. It takes a supernatural being — not being subject to the laws of nature — to create life from non-living matter;

- Evolution occurs within one kind (family classification). However, [Darwin's common descent evolutionary hypothesis](#) assumes that evolution (also) occurs across family classifications, while believers of Darwin's common descent evolutionary hypothesis are unable to evolve for example microbes to plants or animals, nor in a lab, nor in simulation on a supercomputer. Let alone, to apply this hypothesis to daily life;
- The [Extraterrestrial life hypothesis](#) — the hypothesis that extraterrestrial life may exist — is purely based on the hypothesis of a spontaneous origin of life: “*If life did arise on earth by itself, it would be inconceivable that this is the only planet upon which there is life*”. Not supporting a spontaneous origin of life, also the Extraterrestrial life hypothesis is not supported by Judaism, Christianity and Islam. It includes the fear for extraterrestrial life, which is spread by atheism, not by Judaism, Christianity and Islam;
- The [Oort cloud](#) — the birth place of comets — is not located, only a swarm of comets;
- None of the endless series of hypotheses on 'modern' (particle) physics — called the [Standard Model](#) — can be honestly be replicated, let alone be applied to daily life. It includes hypotheses like the [string hypothesis](#), [spacetime](#), [antimatter](#)⁹, [dark matter](#), [dark energy](#), [black holes](#)¹⁰, [gravitational waves](#), [Higgs boson](#) and [Majorana fermion](#). For example, [researchers](#) of the [Delft University of Technology](#) wanted to utilize the Majorana fermion to make quantum computers more stable. However, after years of research, they have recently [admitted that they couldn't find the Majorana fermion](#);
- [Artificial Intelligence](#) (AI) may deliver useful engineering techniques. However, engineering is limited to deliver **specific** solutions to **specific** problems, while [fundamental science](#) delivers **generic** solutions. Artificial Intelligence is not based on a natural definition of intelligence, as a set of natural laws. Therefore, AI is not intelligent by itself. In fact, AI — in general — is limited to perform repetitive tasks, and [artificial neural networks](#) — in particular — are limited to [pattern recognition](#) and [pattern generation](#). As a consequence, AI doesn't deliver a natural foundation for understanding what human intelligence is. Nevertheless, some atheists believe that the [Artificial General Intelligence hypothesis](#) (AGI) — or Strong AI — will lead to human-level AI. Moreover, they are spreading fear for human-level AI, taking our jobs or even taking over the world. This fear is not supported by Judaism, Christianity and Islam. In fact, not being based on a natural definition of intelligence, as a set of natural laws, Artificial Intelligence is unable to replace any job that requires a certain amount of human intelligence.

Like the Christian scientists mentioned above, I stand in the Christian tradition of investigating and replicating the way nature really works. I believe that life and the universe are intelligently designed. And I believe that any intelligent design can be unraveled through reverse engineering. I have identified the human language as a source of natural intelligence. And I believe that the intelligent design of the human language can be unraveled through reverse engineering, based on Laws of Intelligence that are naturally found in the Human Language.

⁹ [Positrons](#) are subatomic particles rather than antimatter.

¹⁰ [Black holes](#) are strong magnetic fields rather than a region of spacetime.

3.1. Overwhelming evidence...

Believers of [Darwin's common descent evolutionary hypothesis](#) claim there is “overwhelming evidence” for this hypothesis. However, in the same way, we can claim there is “overwhelming evidence” for Santa Claus too:

- 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.

But we all know: Santa Claus is just a belief. In the same way, [Darwin's common descent evolutionary hypothesis](#) is just a belief.

3.2. 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 will have to conclude: The living bacteria and fungi have created the milk from water.

But if you do believe in cows, you will know that these animals produce milk from grass, (herbs) and water. Furthermore: You will know that the living bacteria and fungi actually degenerate the milk, instead of creating it. In the same way, evolution is: degeneration ¹¹.

3.3. 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 how to use 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 how to define intelligence in a natural way (as a set of natural laws), and how to use Laws of Intelligence that are naturally found in the Human Language in order to implement natural intelligence through natural language in software.

¹¹ This example originates from Peter Scheele. More info on Wikipedia: [Devolution \(biology\)](#). The cows are of course a metaphor for God, who has designed and created the laws of nature, the universe and life.

3.4. Self-organizing systems

In this [‘scientific’ paper](#), self-organization is defined to refer “to a broad range of pattern-formation processes in both physical and biological systems”. However, no distinction is made between **static** ‘self-organization’ – which is limited to pattern formation – and **dynamic** organization, which requires natural intelligence.

Illustrating dynamic organization, using the example of a kid’s playroom: When children play, the room ends up messy. The room has no self-organizing capabilities. So, the intelligent influence of the parents – usually the mother – is required: “*Let’s clean up your room together. This doll doesn’t belong on the ground. Let’s put it together with the other dolls. And let’s put this toy car together with the other toy cars*”.

Later on, when the kid matures, the dolls and toy cars are either archived or given away, in order to make room for a homework / computer desk. It’s all part of the ongoing – dynamic – organizing process, taught to the child.

As an adult, the former child has learned to organize without any help. It is self-organizing.

Summary:

- Natural pattern formation is a static process, and the result of natural laws;
- Organization is a dynamic process. It comes with rules / laws, and requires intelligent influence;
- Self-organization is a dynamic process, and is synonym to natural intelligence.

3.5. Complex systems

According to [Darwin's common descent evolutionary hypothesis](#), evolution leads to increasing complexity. However, increasing 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, knowledge and understanding. Only if the observer considers a system **unnecessarily complex**, he/she has a better overview and understanding 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 are unable to understand the childish simple function in language of conjunction “[or](#)”.

3.6. Super-intelligence (*machines surpassing human intelligence*)

First of all, it is funny that some believers of [Darwin's common descent evolutionary hypothesis](#) believe that super-intelligence can evolve in machines:

- while all machines are (intelligently) designed;
- while both intelligence and design originate from the bible;
- while the theory of evolution has no satisfying explanation for the origin of intelligence;
- while scientists are unable to define intelligence as a set of natural laws;
- while some evolutionists even deny the existence of intelligence;
- and while neurons are not essential to intelligence, in the same way as feathers and flapping wings are not essential to aviation.

Besides that, we really need to distinguish “machines surpassing human capabilities **in a limited domain**” from “machines surpassing **human intelligence**”. Super-intelligence requires a machine to surpass humans in all intelligent tasks. Otherwise, it would only surpass humans in a limited domain of programmed tasks.

First, let's consider a few systems that surpass human capabilities **in one only domain**:

- [Deep Blue](#) was able to beat humans in playing chess, but not in playing the game Go;
- [AlphaGo](#) is able to beat humans in playing the game Go, but not in playing chess;
- Bulldozers are able to beat humans in moving an amount of sand. But they are unable to play chess, unable to play Go, unable to cook diner, unable to babysit, and so on.

Now, let's assume we want to build a machine that surpasses humans **in a more than one domain**. Let's consider to integrate a chess computer with a bulldozer. In this way, we will get a chess-playing bulldozer, or a sand-moving chess computer, that surpasses humans in both playing chess and in moving an amount of sand. It is possible. But it has not been done yet, because such a machine – integrating the capabilities of **different domains** – is very unpractical.

Even if we try to integrate systems of **domains that are less different** – like a car and an airplane – we will eventually discover that the design of the integrated vehicle is weaker than the individual designs of the car and the airplane. So, it is possible to make a road-legal airplane, or a car able to fly. But the integrated vehicle will always be **weaker than the individual designs** of the car and the airplane.

Apparently, we are limited to design systems that surpass human capabilities **in a limited domain**. To me, It proves to me that we have a divine origin. I am sure, the brain has an intelligently designed operating system (OS). Without such an OS, neurons are limited to pattern recognition. I am reverse-engineering the algorithms of the language center of the human brain, that provide us with the ability to reason autonomously.

3.6.1. Spreading fear for super-intelligence

Believers of [Darwin's common descent evolutionary hypothesis](#) are unable to define intelligence in a natural way (as a set of natural laws), and they are unable to design super-intelligence. Instead, they hope – or fear – that evolution will eventually evolve super-intelligence in machines. So, in their world view, evolution can accomplish things that they can't do. In their world view, evolution is supernatural. And believing in a supernatural entity is called: a belief.

Actually, atheism is the only belief system that spreads fear for super-intelligence. Religions like Judaism, Christianity and Islam officially believe that respectively Yahweh, God and Allah has created life and the universe. On the other hand, Hinduism and Buddhism have no explanation for the origin of life and the universe. In search for an answer, some of them combine their religion with the belief in [Darwin's common descent evolutionary hypothesis](#), including the fear for super-intelligence.

Nevertheless, let's assume that we should fear super-intelligence 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”.

But what if a robot gets out of control? A robot has no mind of its own. It is just a machine. And machines 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.

3.6.2. Free will and morality

First of all, it is funny that some believers of [Darwin's common descent evolutionary hypothesis](#) believe that machines can have morality, while morality originates from the bible.

According to the bible, 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 captured 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.

So, I agree with [John Searle](#) on his [Chinese room thought experiment](#), that computers will never have a mind and consciousness.

But I only agree to a certain extent on his claim that computers can at best simulate intelligent conversations: “[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](#)”. He clearly didn't think of the possibility that Laws of Intelligence that are naturally found in the Human Language can be used to artificially implement natural intelligence in computers through natural language, by which the machine is able to organize knowledge autonomously.

Testimony: I don't have this wisdom of myself

During my young childhood, God asked me if I wanted to become rich or wise. I chose wisdom, because I like 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, I offered my life to God, as in giving up my own life and desires, and fully dedicate my life to Him. Initially, nothing special happened. 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 an assignment in order to prove atheism wrong, which I have accepted. As promised, God gives me wisdom – insights beyond my own knowledge and intelligence – as long as I work on this project. However, if I use the given wisdom for my own good, it will be taken from me. And I was explicitly ordered: “[Give everything away. Keep nothing behind](#)”.

While I was criticizing the current approach to AI and NLP 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. So, I prayed and asked for an answer. Ten minutes later, I was able to 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 Laws of Intelligence that are naturally found in the Human Language.

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](#)”, among 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).