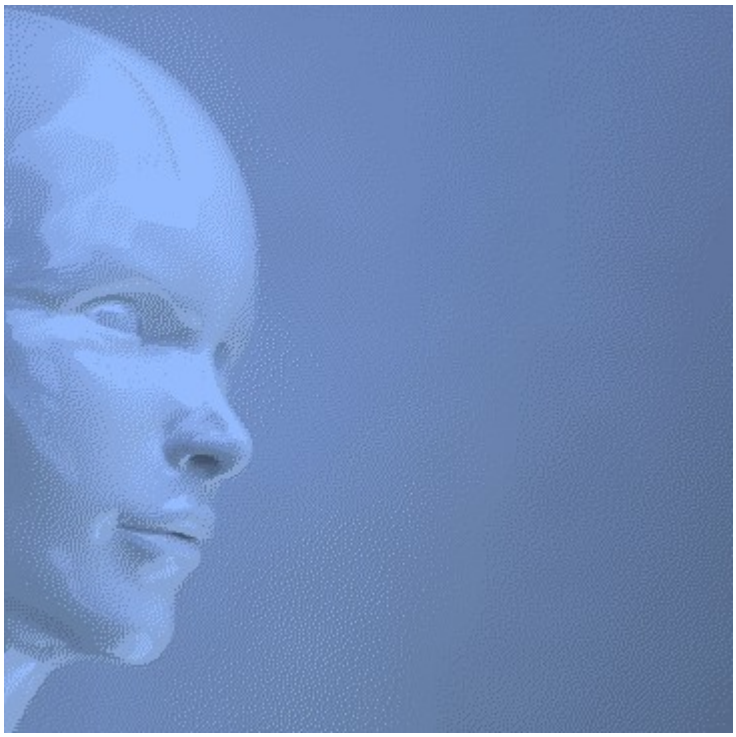
Will computers ever understand the human language?

Artificial Intelligence



For almost 60 years, scientists have been working on Artificial Intelligence. Computers are very good at math and looking up information very quickly. But can they think by themselves and understand things? Such a machine has not been developed yet. Will scientists ever succeed in this?

Scientists are trying to develop computers that understand the human language. Search engines, such as Google, use such knowledge technology. Enter keywords and Google will show you the websites on which the keywords occur most. That's useful, but you still need to look up the website that you want from that list, by yourself. Search engines can not answer questions like a human does. They do not understand the human language. How come? And can it be solved?

Back to basics

Before this question can be answered, we have to go back to basics. Every building needs a foundation; otherwise it will prolapse and eventually collapse. Likewise science needs a foundation, which can be found in the laws of nature. Everything in nature and in the universe seems to follow the laws of nature: the planets orbit around the sun, plants grow towards the sun, rain falls to the ground to wet the plants and so on.
Scientists do research and use the solid base provided by the laws of nature. By experimenting, they try to figure out how nature works. In the same way intelligence and language are based on laws of nature. Through communication (language) people are able to understand each other (intelligence). As with other natural laws – like those that govern electricity and light – we are allowed to put the natural laws of intelligence and language to use, for the glory of God.

But at this moment, the field of Artificial Intelligence is considered as a behavioral (or cognitive) science. So, the field researches how intelligence and language behave, instead of researching the natural laws behind intelligence and language. All kind of techniques are being developed without understanding what intelligence, and what language is. Some of these techniques are useful and applicable. But they are not based on intelligence. And that might explain why this field does not extend much further.

What is intelligence?

Intelligence is actually simply “the ability to organize independently”. And sharing knowledge through language is simply “the ability to organize knowledge independently”. Intelligence can be explained as follows. It is the ability:

- to independently group what belongs together;
- to independently separate what doesn't belong together;
- to independently leave out 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.

Important to language: The more you structure your sentences and texts, the better you are able to convey your intent and the better you'll be understood. This can be done by grouping what belongs together, by separating what doesn't belong together and by leaving out when it is no longer important.

Intelligent computers
To make a computer intelligent, so it can organize independently, you have to make sure that it becomes independent (like a teenager who is allowed more and more freedom by his parents). This can be 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.*

The grammar of a language contains all the tools to organize knowledge. This can be processed by a computer program, so that computers can organize their knowledge independently.

Here are a few simple examples. They show how a computer is able to make a new phrase from an existing phrase. There are many more possibilities, but it would go too far to discuss them all here.

Merged conclusion
Take a look at these sentences: *John is **a father. A father** is a man*.
Both sentences have a phrase in common, namely *'a father'*. By merging both sentences, a new phrase (a conclusion) can be created: *John is a man.*

These are the steps that are necessary to merge both phrases:

- *John is **a father. A father** is a man.*
- *John is ~~**a father. A father** is~~ a man.*
- *John is a man.*

Automatic question creation
Take a look at these sentences: *Chris is **a child** of John. **A child** is a son or a daughter*.
Here you can draw the conclusion: *Chris is a son or a daughter of John*.
A computer can draw that conclusion by following these steps:

- *Chris is **a child** of John. **A child** is a son or a daughter.*
- *Chris is **a child** (**a child** is a son or a daughter) of John.*
- *Chris is ~~**a child** (**a child** is~~ a son or a daughter) of John.*
- *Chris is a son or a daughter of John.*

But this conclusion can be changed into a question:

- Place the verb at the beginning of the sentence.
- Remove phrase *of John.*
- Replace the colon by a question mark.

The question that has been created independently by the computer: *Is Chris a son or a daughter?*

Reversed conclusion (present tense)
Take a look at this sentence: *John is the father of Paul.*
By reversing this sentence and a little adjustment, the following conclusion can be drawn: *Paul has a father, called John.*
Now in steps, so a computer can do it as well:

- Switch proper nouns *John* and *Paul*;
- Replace verb *is* by verb *has*;
- Replace definite article *the* by indefinite article *a*;
- Replace conjunction *or* by adjective *called*.

Reversed conclusion (past tense)
Take a look at the same sentence, but now in past tense: *John was the father of Paul.*
The same conclusion can be drawn as described above, with the difference that the verb should be in past tense as well: *Paul had a father, called John.*

And now an extra conclusion can been drawn: *Paul has no father anymore*.

***Part of* conclusion**
Take a look at this sentence: *A car has an engine.*
By reversing this sentence and a little adjustment, the following conclusion can be drawn: *An engine is part of a car.*
Now in steps:

1. Swap articles and nouns *a car* and *an engine;*
2. Replace verb *has* by verb *is part of*.

Clues in language
Language is used to convey a message. It requires intelligence. Language helps you to organize the transferred knowledge in your brain by providing clues.

1. For example, you can group what belongs together. Take a look at this sentence: *John is a friend of Marc* ***and*** *Paula*. In that sentence, the conjunction *and* indicates that Marc and Paula belong together, in several possible ways (as friends, as brother and sister or as a couple).

2. You can also make a distinction. Take a look at this sentence: *Is Chris a son* ***or*** *a daughter?*
In this question, the conjunction *or* indicates that the words on both sides of the conjunction can not occur simultaneously. Chris can not be both a son and a daughter. This is a clue in the language that you need to make a distinction, a choice. Chris will be a son in the one case, and a daughter in another case.

3. Language can also provide tools to leave out what is no longer relevant. Look at these two sentences. The first sentence describes a situation between 2001 and 2009: *George W. Bush is* ***the*** *president of the United States of America.*

In 2009 there were elections. Then the situation changed to: *Barack Obama is* ***the*** *president of the United States of America*. Definite article *the* in both sentences indicates that there can

only be one person that is president of the United States of America. So, when Barack Obama became president, that automatically meant that George W. Bush was no president anymore.

Also, a computer can use these tools in language. It then knows:

- *Barack Obama is the **current** president of the United States of America.*
- *George W. Bush is the **previous** president of the United States of America.*

Applications
These language techniques will be used in the future to make computers increasingly better at understand the human language. You can think of useful applications such as:

- Software that supports students in doing their homework.
- A digital teacher (although a human teacher is indispensable).
- A higher quality translation software.
- Better search engines.

But will it lead to computers that are able to think for themselves? No, there is no need to be afraid of that. Fear of thinking computers originates from the belief in evolution. The evolution theory assumes that a system can evolve new functions – and eventually new species – by itself. The fear people who believe in the evolution theory have, is that – after humans – another species will emerge. Will the assumed evolution from bacteria to humans be continued in computers? Absolute nonsense! The idea that a system can evolve new functions and species (macro-evolution) is a lie, believed to deny God as the creator of all.

The truth is that all machines are designed by humans. A computer can not be smarter than the designer of that computer. And in the end every computer has a power-off switch.

In addition, a machine can never have human qualities, because God gave humans a spirit (a free will and morality). The spiritual world can not be captured in machines. So, machines will never have a spirit like humans, and will never be placed above man.

Evolution versus creation

To make computers intelligent you must first understand what intelligence is and how it originated. The same goes for understanding human language.

Many scientists assume that intelligence started from nothing and grew (evolved) to our human level intelligence. And the human language would have grown (evolved) from the primal sounds of primeval man into our rich language.

You know what it is so remarkable about these assumptions? Scientists actually have no idea what intelligence is. And they have no clue how people are using their language to convey their meaning to each other. Therefore, they also have no idea how to make computers understand the human language.

The language techniques explained in the editorial are not consistent with the evolution theory. Laws of nature (as found in the language) can not grow or change. They just exist. Language can not be grown from nothing.

Bible

The Bible doesn't say anything about creatures that could not speak in the beginning, but slowly got smarter, forming a language. Rather, it says that Adam and Eve were communicating with God daily. So we may assume that they were intelligent and that they were able to speak right after their creation. They did not even need to learn a language, because God is the origin of intelligence and language. He has made His creatures intelligent and has given humans a rich language, with the purpose to share our innermost feelings with each other and with God.

God has created laws of nature to make his creation run like clockwork. Everything in nature has a clever function. God has given people and animals a certain degree of intelligence, matching their kind, and which operates according to natural laws. This way you are able to organize knowledge in your brain.