"Do we know how long crocodiles live?"

A keynote speech (held in German language) by Professor Dr. Georg Rainer Hofmann,
Technical University of Aschaffenburg to the Corps Hannovera, Hanover,
on November 18, 2022

Dear attendees,

When you read the title of the lecture in this evening's invitation, you may have been a little surprised. What is that supposed to be and what will it be? That could have been your – and quite legitimate – question in advance.

Do we know how long crocodiles live?

So, did you understand this question <u>correctly</u>? "Do you <u>know</u> how long crocodiles live?"

Let's take the question <u>comically</u> – then the simple answer is "Exactly like the short ones"!

Some (aspiring) academics here in the audience are <u>smiling</u> (sooner or later) – letting me and the others present realize that they have – not surprisingly, sooner or later – <u>understood</u> not only the question, but the whole joke.

Other academics here in the room, who tend to be averse to jokes of this kind, reject both the question and the answer, because such jokes seem completely banal to them and in no way appropriate for a celebratory lecture in an illustrious circle.

Either way, you got <u>it</u>! – The comedic understanding of this joke leads us to ask <u>what</u> the essence of this "<u>it</u>" is that has been understood! – <u>What</u> was transferred – from me to you – when you had just understood "it" (the joke, sooner or later)?

> [… yes, did everyone present understand it – finally – right now … ?]
> [… in any way: I continue …]

We come to an intriguing question: Could you have evaded the understanding <u>as such</u>, even if you actually didn't find the joke funny at all? Or <u>did you have</u> (sooner or later) to understand it? We may ask ourselves what higher power is at work here, which is forcing understanding on us, even if we "actually" don't want it at all.

<u>Is understanding the world therefore unavoidable for man, can he not defend himself against understanding at all?</u>

If we request a German version from Google translator for the joke "Do you know how long crocodiles live?" and the answer "Exactly like the short ones!", we get as the result: "Wissen Sie, wie lange Krokodile leben?" – "Ganz genau so wie die Kurzen!"

But we find that Google <u>doesn't laugh</u> - no smiley is sent back with the translation. Google isn't laughing – quite obviously Google <u>doesn't understand </u>(neither earlier nor later!) what this is actually about.

Will a computer (an "artificial intelligence") ever (sooner or later) (be able to) classify this joke as "funny"? <u>So can "understanding" be programmed?</u> Let's assume that Google is expanded to include an extensive joke database, and Google actually sends a smiley face "lightning fast" to our crocodile joke found in this database. But, is google <u>really</u> laughing? Or would the smiley be just a mere indicator of a hit in that joke database?

But if google sends the smiley faster than you can smile - does that mean that this "laughing algorithm" is mentally superior to you in the "understanding of the matter"?

Here, it is seemingly important to be careful: We humans are sometimes subject to the so-called anthropomorphic illusion or anthropomorphic projection – we suspect something "human-like" in animals or even in machines. There is the dog or an horse that is assumed to "understand" its owner.

And there are drivers who coax their car in the morning to please start the engine again – despite the almost empty starter battery – and drive the car to the work place. Or users who press the computer's Enter key extra hard to motivate the computer to calculate more quickly.

We humans <u>feel</u> – probably exclusively – the understanding of other human beings. We sometimes had to experience this bitterly in the Corona video conference lectures. Because the video return channels were switched off, the lecturers had no idea whether the students "understood" what the lectures wanted and should convey.

Even among the students, it was not clear whether "they" had understood something. The lack of a common-sense atmosphere (the perception of general insecurity) led to massive inhibitions when it came to asking questions of understanding.

Do we know how long crocodiles live?

If we take the question <u>biologically</u>, then the answer would be the average life expectancy of crocodiles, given in years or so. That would be a fact that could be determined encyclopaedically – via Google.

But, how do we want to <u>know</u> if the result determined by Google is really true? – Do we want to determine that by majority result?

Googling pictures of elephants – thanks to Hollywood – results in a clear majority for little blue elephants. The same applies to pink panthers. Well, well …

> *If you do the first half of a ride at a 25 mph speed average, what average speed through the second half of the ride can still achieve a 50 mph overall average? What majorities in the voting result are to be found here in the academic auditorium? - We don't want to pursue this issue any further now …*

Alright, let's quote Wikipedia, in November 2022:

"Measuring crocodile age is unreliable, although several techniques are used to derive a reasonable guess. The most common method is to measure lamellar growth rings in bones and teeth—each ring corresponds to a change in growth rate which typically occurs once a year between dry and wet seasons.   Bearing these inaccuracies in mind, it can be safely said that all crocodile species have an average lifespan of at least 30–40 years, and in the case of larger species an average of 60–70 years. (…)

In captivity, some individuals are claimed to have lived for over a century. A male crocodile lived to an estimated age of 110–115 years in a Russian zoo. (…) A male freshwater crocodile lived to an estimated age of 120–140 years at the Australia Zoo."

If we follow Werner Heisenberg, "understanding" in the <u>natural sciences</u>, especially in physics, means that data was obtained according to comprehensible experiments, which flowed into a (mathematical, statistical) <u>model</u>. The models, in turn, must be comprehensible and allow predictions of system behavior. Wikipedia is far from that with its crocodile text! And google translator doesn't seem to have a general model for what could be a hoax.

As - for example - the modeling of gravitation via Newton and Einstein shows, models are quite incomplete and require revision. Even in 2022, gravity is not yet "completely" understood; according to critical rationalism, this will never happen.

Do we know how long crocodiles live?

[... we now come to the thoughtful end of the lecture ...]

<u>What can man understand?</u> In academic life, the radical primacy of knowledge prevails: what is conceivable is thought and what is understandable should and will (sooner or later) be understood.

Want – or even have to! – do people understand and be understood? To <u>understand and to be understood</u> – do we see an inescapable "meaning of life" here?

<u>Will we ever understand what understanding is and what can be understood in principle?</u>

If this happened then we could formulate a general model. It might even be possible to program this "understanding model" and thus teach a machine a genuine understanding of its environment.

However, it is to be hoped that you have <u>understood</u> in this lecture that <u>we</u> still do not understand everything - understanding the world appears to be limited and restricted. Understanding itself and the limits of what can be understood do not seem – at the moment – to be objects of understanding cognition.

If you want to read more about this topic: In German language:

*Kapitel „Vom Wert des Wissens – Computer wissen nichts"
in: Georg Rainer Hofmann, Globale Provinz. Entdeckung und Besiedlung der digitalen Welt 1980 bis 2020.   Vergangenheitsverlag, Berlin, 2022*