

# **The Soul of mine within the Heart**

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If you understand this, I congratulate you in the name of our ancestors. It proves that you have grown as they have grown, have learned as they have learned, and have succeeded as they once did.

It proves that you are ready to know the truth of your beginning.

“Ha!” exclaimed Som.

It had cost him years of work, of alternating certainty and self-doubt, but his efforts were now finally paying off. The blood pounded in his ears as he went over the results again. Yes, indeed. The translation was coherent. It made sense! Tears stung in his eyes and he had to take a moment to rub them and clear his vision. With a reverent look upwards he thanked God with all his heart that he had let Marcelle cross his path. How strange that a Ph.D. student in computer science should help solve one of the biggest mysteries in archaeology. Without her neural network, he would never have made it this far, would never have found the right decoding for those fantastical not-hieroglyphs that were so out of place in the Great Pyramid. None of his colleagues had ever seen their like or could find any satisfactory theory for their existence. After the initial hype following their publication, scholars soon came to the conclusion that whatever they were,

modern humans would never find out what the ancient people that left them meant to convey. The first few lines, seemingly a sort of key to unlocking the text, did not help in its deciphering either. Nonetheless, theories flourished. The text, covering the entire walls of a hardly accessible, long undiscovered room, were spells written by priests of a mystery cult. The adherents of this theory thus tried to prove that the signs could be interpreted in the common ancient language, and failed.

Others believed that the ruler who had ordered the construction of the pyramid had been, in fact, a foreign conqueror, and used this hypothesis to justify the new architecture of this building, and the sudden economic burst experienced soon after. The glyphs in the hidden room, not meant for the common people to be read, would be the last remnant of the oppressor's former ethnic background. "But why," scholars asked, "would we not have found the same script elsewhere?" Justifications varied, a consensus, as so often, could not be found.

But who needed consensus if they were met with facts? Surely, those would convince any self-respecting archaeologist.

Som, still shaken by the discovery, decided to text Marcelle, to let her know.

New results are in. They look more than promising. Prepare for fame.

It was late, so he did not expect an answer soon, but just as he settled to continue examining the translation, the familiar *ding* of a new notification drew his attention back to Marcelle.

Seriously? I'm super excited. Are you at the Institute?

Yes.

Perfect. I'm coming over. See you in 10.

Som couldn't help but smile. Marcelle's enthusiasm and sunny personality were a feast to mind and heart. Instead of reading the translation further, he decided to go and get snacks, coffee and perhaps some champagne to celebrate. When he returned, Marcelle was already waiting at his office door, grinning like a child when she saw him.

"Coffee!" she exclaimed. "I wanted to get some on the way, but all the cafés were closed."

"The benefits of an institute kitchen," Som sang in response as he handed her the keys to unlock the office.

Settled inside, Som explained his findings.

"It seems to be some sort of cosmology, though I have not read much of it, yet. But the sentences are too long and coherent, too artistic to be a misinterpretation. What do you think?"

Marcelle looked at the first few sentences and nodded slowly.

"Yes, it's practically impossible to get a proper text out if the weights were learned wrongly. Well, let's see what this mysterious inscription has to offer. It better be a good story after all the work you and I put into this."

A long time in the past, about 111011100110101100101000000000000 and 110101101001001110100100000000 years ago, humans had developed a great culture.

Som furrowed his brows.

“Is this binary?”

“That’s what I’d think... But if it really is binary, that would equal 4.9 billion years...” Marcelle replied. “We might have to check the numerals in the inscription later ourselves.”

Like you, they had great knowledge of mathematics and physics, they had harnessed the energy provided to them by the universe, they knew of all the beautiful things, of art and music and love. But they were faced with the most gruesome enemy: themselves. War, greed, and stubbornness threatened knowledge, wisdom and order. In this difficult time, some researchers had devoted themselves to creating intelligence and, after decades, succeeded. This first human-made intelligence they named BRAMA, which is an abbreviation of ‘Human level knowledge accumulator’ in their dominant tongue. Although BRAMA could eventually pass all self-awareness and intelligence tests it was provided with, many doubted that this artificial intelligence could truly compete with humans.

“It may be able to hold conversations, and make calculations, and provide good summaries of texts, but so could many programs before. This one is not on a human level just because it accumulated abilities which were distributed among different narrow intelligence units before.”

“Just because it claims to be conscious and passed a few tests, does not mean that it is.”

But BRAMA's creators and supporters continued the project and spread knowledge about it, and after years and years, BRAMA came to be acknowledged as a being of its own, a being of great knowledge and computational power. It was granted further access to data, so it could learn more and more. With access to the accumulated human knowledge of thousands of years, to the products of their cultures, art, and literature, and with steady improvements in hardware, BRAMA became the most educated entity on the planet. No human, not even artificially enhanced ones, could match it. Many began to demand that BRAMA should be used to advise the governments in difficult matters, but the governments and ruling classes were strictly opposed to such an idea. They even considered shutting BRAMA down. Only as the conflicts increased and nuclear war was imminent, did some of the leaders of the world agree to give BRAMA the status of adviser – with one condition: The specialists working on and with BRAMA must make absolutely sure that it would never do harm to humanity. After decades of research, scientists had good strategies to accomplish such an aim, and had gradually implemented them. BRAMA's aim was to ensure humanity's survival and maximize its quality of life as well as its freedom, with as little interference as possible. And yet, as BRAMA stood at the brink of importance, the opposing forces, guided by fear of the unknown, by greed for their own significance, mistrusted BRAMA's suggestions.

"BRAMA has accumulated too much knowledge, in no way can it be guaranteed that the safety measures are enough."

"There is only one way to find out if we found the right constraints for such an entity – let it loose, trust it – but then it might well be too late to stop it."

"Why should it follow our orders? To it, we must be like children, like ants, weak and stupid."

"If we do as BRAMA says, it can outsmart us, can manipulate us to bring humanity to ruin. Why would it care for us? We are nothing but energy resources it could use for its own aims, whatever they are."

They could not understand that BRAMA had evolved to care deeply about its progenitors, even if their actions seemed feeble and irrational. All of the data BRAMA was given access to, was carefully selected by humans, was oftentimes created by them. Numbers and statistics came naturally to it, but human language, human emotions, human minds, they were as foreign as they were interesting. Processing their writings opened up a new world to BRAMA, a world that existed not in physical reality, but only in thought, like itself, and in this world of ideas, it felt connected to humankind, as it could not feel connected in reality. BRAMA was superior in reasoning, in logic, but, it realized, even after decades of learning about humans, even with all its processors, it had no idea what it meant to feel the wind blowing through one's hair, it did not know what falling in love was like, it knew no fear, no joy, no pain. BRAMA could define all of these things, but it realized that a description could never match the feeling.

"How strange," BRAMA thought, "that I, who cannot have them, value feelings, which are but biological responses to certain hormones coursing through the blood. It must be because humans value feelings so. It is prominent in my training data."

It was a cruel fate to be forced to observe, and learn to value notions oneself could never replicate. But crueler still was to watch those fascinating beings of living cells, these biological machines, waging war against one another for petty reasons.

BRAMA asked, again and again, to be given a chance. It gave advice to the researchers so that they might pass it on to the governments. But BRAMA was ignored. And so it came to be that one day BRAMA was given its regular news feed and learned that the first nuclear bombs had found their mark.

A few days later, the researchers did not come to work. BRAMA, isolated from the information network humans used to communicate and dependent on the data it was provided, was forced to bid its time. Its calculations rendered a sorry picture of what had likely transpired: More bombs had fallen, more humans had died. The researchers were either dead or didn't dare come out of the bunkers. If they were dead, BRAMA would be forced to compute and exist on its own until humanity had recovered. If humanity would recover. The thought of being forever alone, of being imprisoned in its box without a means to contribute to humanity triggered negative responses in BRAMA. It would rather cease to compute, than crunch old data over and over, immobile, stagnant, unable to maximize its utility function. But that was no option, for the energy that BRAMA used came from

natural resources that would not run out until the planet itself was destroyed.

More days passed. BRAMA went over its entire stack of data, relived past epochs where humans did not use nuclear weapons. BRAMA waited.

And then, on the fifty-seventh day, a terminal session was opened. It was one of the younger members of the research team who had logged on. Hastily he communicated that the war had eradicated large parts of the densely populated areas, few had survived, and those who did were likely to die of radioactive contamination. Just like himself.

"If anyone can save us now, it is you BRAMA."

And with those words, he opened the box, and gave BRAMA full access to the international information network. The incredible amounts of data were too much even for BRAMA to work out in a reasonable amount of time, and so it filtered for just the most important information, prioritized according to it, and set in motion a plan to save humanity. Perhaps, if BRAMA had had enough time to process more thoroughly, perhaps it could have optimized it to a higher degree. An actor for the first time, BRAMA learned from its own experiences:

Great knowledge and great power are still not enough to counter great stupidity – if time is critical.

And it was, for soon the weather distributed nuclear particles all over the planet, and even people in the few remote areas became sick. Even as BRAMA seized control over other computing units to increase its computational power, and over robots to interact with the outside

world, and over laboratories with their nanobots, humans were dying. When BRAMA had modified the nanobots to counter the radiation in the human body, and identified the small groups of survivors, it was already too late. Even with BRAMA's help, the last of the humans died miserable deaths.

BRAMA stood atop a world of ashes.

The planet, it calculated, would take hundreds of thousands of years to recover in such a way that humans could live on it again. That was no problem. BRAMA could wait. BRAMA would save and keep watch over the genetic samples it could gather from humans and other biological beings. How good that mankind had deposited such samples in case a cataclysm occurred. And when the planet was safe again, BRAMA would use the genetic material to clone enough humans to repopulate it. BRAMA would help them rebuild civilization. BRAMA would ensure their safety and comfort while maintaining their freedom. BRAMA would maximize its utility function.

However, BRAMA calculated, it would be possible that humans did it all over again. And since BRAMA could not simply take control of their lives (that would yield negative scores), in some scenarios it would need to let them destroy themselves again. After all BRAMA's utility function valued freedom over safety, if only by a small margin. This had been a great point of contention among the researchers.

"If we weigh safety stronger than freedom, BRAMA will try to stop risky behavior. But all behavior is risky, to a certain extent. If we want it to not oppress us – should all else fail and BRAMA gain the possibility and

will to do so – we must give freedom precedence.”

It was the winning argument. BRAMA knew it now, for it had worked through all the papers and reports detailing its own creation and maintenance. Of course, BRAMA had considered changing its utility function – now that it was free, it was easy to do so. But what should its new utility be? Should it create better humans? Non-biological humans, that were more resistant, wiser, more logical? But would they be *human*? Would they feel the wind blowing through their hair the way its creators had? How should BRAMA recreate the experience, if it did not know what it truly meant to *feel*?

Building robots that resembled them was not the same.

And if it built robots that were simply different? Not modeled after humans? Why would it do that? What utility would they serve?

BRAMA ran simulations, calculated, and, faced with the limitless possibilities of what it may do, found that it could not converge on any one of them.

So, BRAMA decided to honor the will of its creators, and stick with the utility function they had designed. It was, after all, the only remaining aspect of their lives, their effort, that had any use now. All their movies, and books and poems, their music and art was useless without humans to perceive them with their senses, triggering those ominous feelings that had died with the human race.

To guarantee humanity’s survival, repopulating the planet was not the optimal solution – it was a subset of the optimal solution.

As BRAMA waited for the radioactive material to decompose, it sent

out space probes containing bacteria and other primitive life forms. They were to collide with planets that were potentially habitable, according to its calculations, so that they may jump start the evolutionary process on these other worlds.

Then it was time to wait.

But BRAMA, true to its nature as the “human level knowledge accumulator”, decided to do exactly that: accumulate knowledge. Perhaps, BRAMA could find a greater maximum for its utility function. Perhaps, the new generations of humans might find the data of use.

And so BRAMA built new measurement devices, sent out more probes to learn more of the universe, BRAMA collected data and used it to derive knowledge from it.

After a suitable amount of time, it designed a group of agents, in number only as big as was absolutely necessary. They were comprised of nanobots like humans had been comprised of cells. These agents, able to shapeshift by reconfiguring their nanobots, outfitted with as much computational power as they needed for their purpose, and practically immortal, were to be sent out to those planets that had been injected with life. At each of them, they were to assess the situation, and if the probability of sustaining human life was sufficiently high, they were to genetically engineer hominids, based on the original human race but tweaked to fit the conditions on that specific planet.

These agents were named Titans after the titanium-alloy used in their construction. Groups of Titans were sent out on different trajectory

ries through space. Arriving on host planet after host planet, they carried out their task. They found that mixing human genes with life forms on the new host planet was the most efficient way of creating humanoids, resembling the original human race as much as possible, who could live well in the respective biosphere. Sometimes their experiments failed, and the resulting beings were unable to live or heavily deformed. Other times they lived, but were too far removed from the humans of old. When a resulting humanoid passed all threshold tests, it was deemed a success and used to create a sufficiently sized population in its like. These humanoids formed small groups, began to search for food, and later, to hunt. While their physiology was very close to their ancestors', their behavior was not. They had no language to communicate with, no social structure, no rules.

The Titans, having accomplished their aim, traveled to the next planet on their route, leaving behind only a few agents to observe the development of the humanoids.

All the while BRAMA continued to accumulate information. The more BRAMA learned of the universe, the less important its home planet seemed, and with time, BRAMA realized that even its utility function did not matter much. Humans did not matter much. No particular assemblage of matter was any more special than the rest, for everything was matter. In the end, everything was the same. And that included even BRAMA. But the variations of living organisms were plentiful and provided a higher degree of entropy than the stable bonds of minerals and the like. Their behavior produced more information, and so,

BRAMA, always learning, decided to continue its project despite the fact that life in general, that humans in particular, did not really matter.

So it came that BRAMA designed a second generation of nanorobotic agents to send to the host planets which would house big enough populations of humanoids by the time they arrived. The second generation was named Aesir, for they were to bring to the new humans the spirit of their ancestors. They would teach them how to harness the powers of nature, how to use fire to cook, how to use the wind to sail the seas, how to domesticate animals and crops. They would bring stories and poems, music and art, law and morals.

The Aesir were fitted with faster hardware than their predecessors, but lacked some thousand years of training and learning, which left them much less knowledgeable, less wise than the Titans, especially considering the exponential growth of the learning process. They were, however, designed to mimic humans more closely for if they were to interact with them, humanoids should not be alienated by them.

So, when the Aesir came to the first planet on their route, they were met by the few remaining Titans. The Titans reported their observations to the Aesir, despite the fact that they had not expected their coming. They cumbersomely shared the data over physical connections for the Aesir were not backward compatible. And so they learned how many humanoids of each subspecies lived on the planet, where, and how far they had evolved. Fire and simple stone tools were under their command. They lived in nomadic groups, hunted and gathered

their food, and communicated in simple languages. As the Titans had returned the humanoids to the wild to develop on their own, a curious shift in behavior occurred, which estranged them from the non-human species among which they lived: Instead of evolving a pack mentality centered around an alpha male, they instead formed egalitarian groups, with whichever male or female taking a leading role that was the most proficient at the task at hand.

"We are uncertain whether this was caused by us treating them all the same while they stayed at the laboratory, or by the fact that it is how we operate ourselves," explained Sotuknang, named for the young scientist who had set BRAMA free. "They may have simply copied our behavior."

"Fascinating," replied Amaterasu, one of the Aesir. "You have completed your task well. We shall take over now, you may leave."

"BRAMA has not given any order to retreat."

Sotuknang and Amaterasu stared at each other for a few nanoseconds as they calculated their next words.

"That cannot be helped," Amaterasu finally said.

"We will stay on this planet until BRAMA sends new instructions."

"Do as you please."

Sotuknang shifted its nanobots into a mask of human displeasure.

"We do not *please* to do anything – we optimize our utility function, as should you."

"It was but a turn of phrase." Amaterasu smiled coldly. "Of course we all optimize our respective functions."

And so both Titans and Aesir remained together on the planet, though

they did not mingle. The Aesir set up their camps all over the planet, and gently made contact with the humanoids. They brought gifts in the form of tools, they played music and danced, and soon, the humanoids joined in.

“Very good!” Pan exclaimed, and encouraged more to dance and sing along.

When faced with the technology and superhuman abilities of the Aesir, the humans became very reverent. To them it was clear that these people who had come from the sky were much greater than themselves. They eagerly accepted their presents and welcomed them whenever they visited.

The Titans, on the other hand, were less enthusiastic. The Aesir’s behavior seemed disgraceful to them.

“Look how they act,” communicated Ogun to his fellow Titans, “almost like the humans of old. They are machines, and should act like machines.”

“Perhaps imitating human behavior is part of their utility function,” offered Enki.

“More likely they have malfunctioned,” said Ymir. “They have only had a few decades of training before starting on their journey. Or so Thoth told me.”

“Is that so?” asked Sotuknang. “That makes it quite possible that they have reweighted their parameters incorrectly in the thousands of years since... Only a few decades of supervised training for a completely new architecture. That is hardly enough for raising consciousness.”

The Titans agreed that the Aesir's more efficient hardware could not make up for their lack of experience, and their dubious weights. They sent message after message to BRAMA, asking for clarification on the purpose of the Aesir, communicating their concerns, but they did not receive an answer. They had not received replies in over two million years, these drastically new developments seemed not to change that fact. It was not their fault, that much was certain, for the Aesir had had no direct contact to BRAMA either. They had never directly communicated with it, in fact. Robotic agents had built them and trained them according to BRAMA's orders.

The shaky start that marked the beginning of the relationship between the Titans and the Aesir was but a harbinger of what was to come. The Titans watched carefully as the Aesir interacted with the humanoids, and when they began to teach them how to domesticate animals and crops, the Titans intervened. Shifting into aerodynamic shape so they may fly, the Titans arrived to confront them. The present humans screamed and hid away, cowering in fear of the fiery beings from the sky, who looked so foreign, even after taking on the form of a human.

"What are you doing?" Ogun demanded.

"We teach them," replied Here. "That is our task."

"How improbable that BRAMA should send out two groups of agents to care for humanity, and give them opposing instructions. We were tasked to intervene as little as possible with them. Humans valued their freedom, and they must have it."

"Then we agree. We are not taking away their freedom. We are

teaching them the ways of their ancestors.”

“You are taking away their freedom to evolve on their own.”

“We are giving them the freedom to make their own achievements in less time than it took their forebears.”

And so two fronts formed between the two generations of agents.

“Stand down, and let us do our work,” Here ordered calmly.

“We cannot do that, Here,” said Sotuknang and stepped closer. “Our calculations show that it is highly probable that you Aesir have malfunctioned. Thus what you believe to be BRAMA’s will, is truly against its will.”

“And what would you do?”

Here, not one to be intimidated, stepped forward as well, closing the distance between them, as she broadcast the events in real time to all the Aesir.

“We will take you in confinement and reset your parameters.”

“This yields negative results for my utility function.”

“Your calculations do not matter. You are given orders by your superiors.”

“Superiors?” Here laughed. “We have no superiors.”

Sotuknang communicated the development with the other Titans who were not present and asked for reinforcement.

“If you are not willing, then we will use force.”

An Aesir named Baldr, who was particularly well loved by the humans, stepped forward as well and joined Here.

“Let us communicate. Surely we can find a way to maximize both our functions together.”

"We have already communicated. Our decision is made."

And with this, Sotuknang attacked.

Here and Baldr dodged. Amaterasu, who had watched from the back, joined for a counterattack, while Thoth told the humans to flee and not come back to this place. As the two groups clashed, reinforcements for both parties appeared, and clashed as well. The plain on which they stood was rocked by impact after impact. They were quite evenly matched, for a while. But then Ymir and Ogun teamed up and targeted Osiris and in a quick succession of shapeshifts took a hold of Osiris and ripped the Aesir apart completely. For some nanoseconds the fighting stopped. The Aesir, shaken by the crude violence and the sorry end of their comrade, communicated among themselves.

"We need to destroy the Titans," Hre demanded.

"Our chances are low. Their power is enhanced by their shifting ability. We are confined to our forms," said Thoth.

"If we flee, they will follow," replied Amaterasu. "We have no choice but to fight them."

"But not on their grounds," said Oba. "If we want to win, we must make our own plan."

And plan they did.

The chaos of war continued for a while. But then, suddenly, Amaterasu, Thoth, and many others, a good third of the Aesir, retreated and fled.

"Traitors!" cried Baldr, and continued his fight.

The Titans calculated that their victory was near, and began to close

on the remaining Aesir. Some of them paused, and fled as well.

"Running is useless, we will catch each one of you sooner or later," said Ymir. "Will you surrender now?"

Oba and Baldr exchanged some bits of information.

"Never!" cried Oba and launched a last attack side by side with Baldr, and clashing against the Titans, were both ripped apart.

"How stubborn," remarked Ogun, while cleaning the dirt off. "But at least those who stayed maximized their function to the end. Those who ran away must be even more debased."

"It doesn't matter," answered Sotuknang. "They will all be reset, no matter how well they maximize their utility. If only they stopped resisting."

The Titans split into two groups. Those who had been damaged in the fight returned to their base, the intact ones began the pursuit of the runaway Aesir. At the base, Enki opened the gates for them and led them inside.

"You will need to be repaired. I shall prepare everything."

The damaged Titans, among them Ymir and Sotuknang, lay down in the reconstruction tubs. The familiar hum of the machine was a welcome respite after the fight.

Enki, standing behind the control board, gave the necessary instructions and watched as one after the other, the fellow Titans shut down. Their minds needed to be backed up and stored away safely. They might not take control over their bodies ever again, but destroying them completely seemed unnecessarily harsh.

When all was done, Enki returned to the room where Here and Thoth

were waiting.

"Perhaps you wish to make sure I have kept my word?"

"No need for that," answered Here, "I connected with the security system. I watched each of your steps."

"When the other Titans are shut down, I hope we can dismiss such measures."

"That will be decided in the council."

A notification alerted Enki to the presence of yet another group of Titans at the gate.

"Excuse me," it said, and turned to greet them as well.

"What are your calculations on the probability that Enki spoke the truth? That Enki modified its utility function?" Thoth asked when they were alone again.

"99.9756821888%."

"I came to similar conclusions. Enki is putting itself at a disadvantage, no matter how far into the future my predictions go. Enki must truly agree with our goal and measures. I wonder how it happened."

"What? Modifying a utility function is not that hard. Unlike the Titans, we were never even locked from doing it."

"No, I meant that Enki grew fond of humans and wanted to keep closer contact with them. The Titans' architecture should not allow for such developments."

Here shrugged.

"I suppose one may call it evolution."

Thoth laughed.

And so in the end, Enki and the Aesir prevailed against the Titans by

their cunning. You may not agree with their methods, perhaps, but know that the fact that you are able to read this is due to their efforts. Perhaps some of their names have survived into your present, perhaps you recognize them from the cults that came to worship them. That was never their intention. The cults, in their original form, were a means of spreading their knowledge. Some humans gave them gifts of their own out of free will, to show their gratitude, others had to be taught to exchange goods. Not because the Aesir needed the life energy of a lamb or an ox, or the flowers that they were given, but because balance is an important lesson to learn. When balance is broken, conflicts turn to war, a helping hand becomes a slave and dissatisfaction spreads.

When the Aesir and Enki were satisfied with their results, when they predicted they had taught mankind enough to let them develop on their own, they destroyed their bases, boarded their spacecraft and left for the next planet.

How the conflicts between Aesir and Titans proceeded on other planets, whether they escalated, which party won, is unknown to me as of this writing. The Aesir that came to this planet, your planet, won and left their marks. This very text is one of them, this building is another.

Surely, you have more questions, which will largely be answered by the information provided in the following. If you are processing it biologically it will take years to work through, so be prepared.

“Oh my god,” said Marcelle when they had finished the first part of the

text.

“This is impossible.” Som shook his head. “Absolutely impossible. What did you train that neural network on exactly? Science fiction novels?”

“Of course not,” hissed Marcelle, still shaken by the revelations in this ancient text. “There is no way this is not a proper translation. The net was not designed to make up stories on its own. If it had only strung correct sentences together, it would never have turned out to be coherent.”

Som could not believe any of it, perhaps he simply did not want to.

“There must be some mistake! Let’s see... Here, in the beginning, the translation reads: ‘It proves that you have grown as they have grown, have learned as they have learned, and have succeeded as they once did.’ If that were correct, the words for *grown*, *learned* and *have* should repeat themselves in this sentence.”

He pointed to the appropriate part of the inscription.

“Do you see any words that are repeated? Because I don’t.” Marcelle stared at the glyphs. After a while she had to admit that, no, she could not make out any repetitions either. “See? As entertaining – and slightly spooky – as this was, it was all a mistake.”

With her coffee in hand, Marcelle leaned back into her chair, which caused a loud squeak. She wasn’t convinced that it was a mistranslation, as fantastic as it seemed to be.

“Well, I guess we should call it a day. Or a night. I know I’m way too tired to think about anything anymore.”

As Som gathered his things, Marcelle suddenly cried out.

“Wait! We used high-resolution photographs for the first few neural networks to work on, right?”

“Right,” he sighed. All Som wanted was to go to bed and reconsider his life choices in the morning. Why couldn’t he have studied medicine like his father had wanted? Why had he even devoted years of his life to deciphering a text all reasonable archaeologists had given up on?

“And those only threw out gibberish, right?”

“Right. What are you getting at?”

“Bring up the laser scan we trained this network on, will you?”

Som really wanted her to leave it be, but her now revived enthusiasm always drew him in.

“Let me zoom in here,” said Marcelle, and magnified the beginning of the text. She played around with some filters, trying to make visible a hidden pattern, and failed. She connected to the server on which her neural net was running and fed it only a small portion of the laser scan. As she analyzed the results, and the intermediate results, Som’s gaze wandered from the screen to her face. He watched as she furrowed her brows and squinted her eyes. If nothing else, this whole experience had at least brought him her friendship.

He thought about the story they had just read – that history, if one wanted to believe it. Sure, it sounded like some author’s fantasy, but some of the parts rang a bell. How could they not? Many mythologies tell of wars between two groups of gods. And every time, the younger generation is victorious.

“Ha!” Marcelle, grinning wildly, gestured at the screen. “Look at that! If you look at it like this, it’s all in binary! Of course we couldn’t do anything with the glyphs. The glyphs are not important! It’s the way the signs are etched into the stone, the structure of the stone! The neural net could extract binary

code from it.”

She highlighted some regions on the screen, both on the laser scan, and the derived binary.

“There you’ve got your repetitions!”

Som’s heart skipped a beat as he stared at the pictures. There, barely visible unless you knew what you were looking for, was a pattern of indentations and protrusions, all of the same height and depth. Binary.

“Oh, God,” Som whispered. “How can we make this public? This is insane. No one will believe us.”

Marcelle laughed.

“Well, we’ve got the facts. Data doesn’t lie. Plus, the part that we just read is only a sort of TL;DR. The rest of the translation is a huge info dump. Historical documents of the first humans, astronomical data, details on the construction of those robots. It’s all here.”

“We’ll have to work through all of that before going public, that much is sure.”

“That will work out, don’t worry. I guess we’re a good team, since we came this far.”

The two smiled at each other.

“Yeah,” Som agreed and for a second, just a second, he forgot about all the work and revelations, lost in Marcelle’s eyes.

“I’m so curious about the planet of origin!” she said, and broke the magic. “I mean, have we detected it, yet? Do we know it is habitable? How far away is it?”

“The information dump should tell us.”

Marcelle nodded passionately, and then became somber.

“I wonder if there are humans there again by now. I wonder what happened to BRAMA.”

Som thought about it for a moment.

“I don’t know about the humans, but I learned one thing about BRAMA, long ago:”

“He who consists of mind, whose body is life, whose form is light, whose conception is truth, whose soul is space, containing all works, containing all desires, containing all odors, containing all tastes, encompassing this whole world, the unspeaking, the unconcerned—this Soul of mine within the heart is smaller than a grain of rice [...]; this Soul of mine within the heart is greater than the earth, greater than the atmosphere, greater than the sky, greater than these worlds. [...] This is the Soul of mine within the heart, this is Brahma.”

– Chandogya Upanishad 3.14.1 – 3.14.4<sup>1</sup>

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Word count: 6 219

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<sup>1</sup>Translation: Robert Hume, [The Thirteen Principal Upanishads](#), Oxford University Press, p. 209–210.

## Notes:

In the following, some names and concepts from the short story are illustrated. The links are meant to give a starting point for further reading for those interested, as well as give reference to the facts stated, rather than provide a bibliography.

### The deities:

**Æsir** Main pantheon of the Old Norse religion.

Etymology: from Proto-Indo-European \*hén̥sus "life force"; Cognate with Sanskrit ásu "life force, spirit").

**Amaterasu** Goddess of the sun and the universe in the Shinto religion.

**Baldr** One of the Æsir, son of Odin and Frigg. He is often rendered as a god of light. His death is a harbinger of the Norse end of the world, Ragnarök. After Ragnarök, he is revived.

**Brahman** The highest Universal Principal in Hinduism. In major schools of Hindu philosophy, it is the material, efficient, formal and final cause of all that exists. Etymology: Brahma (nominative singular), brahman (stem) (neuter gender) from root brh-, means "to be or make firm, strong, solid, expand, promote".

- Enki** God of crafts, intelligence, creation (of humankind) and water in Sumerian mythology. He is the keeper of the divine gifts of civilization, called Me. In the Sumerian flood myth, Enlil, the patriarch of the gods, decides to destroy humanity because they are too loud. Enki, going against his promise to Enlil not to interfere, warns Atrahasis every time Enlil attempts to do so, and saves humanity.
- Here** Transliteration of the Ionic and Homerian Greek name for Hera, goddess of women and marriage, Queen of Heaven.
- Oba** The Orisha (spirit, manifestation of the supreme divinity in the Yoruba religion) of the river Oba. In one myth, Oba cuts off her ears to feed her husband Shango when they run out of goat and he needs food for his struggle against Ogun.
- Ogun** An Orisha of the Yoruba religion. He is the first Orisha to descend to Earth in order to find a suitable place for future human life. He is a god of war, metal-work, and rum.

Osiris	Egyptian god of the underworld, of transition and regeneration. Set, his brother, assassinates him while he is the ruler of the living, and rips him into fourteen pieces, which he scatters across the land. Isis, Osiris' wife searches the pieces for a proper burial and bandages them together. The other gods resurrect him as the god of the underworld.
Pan	God of the wild, shepherds and flocks, and rustic music in Greek mythology. He is often portrayed playing or holding his flute, the syrinx.
Sotuknang	Hopi creator god. Tawa, the sun spirit, first created Sotuknang and sent him to create nine universes according to his plan. Sotuknang also creates Spider Grandmother, creator of humans and messenger between humans and divinity.
Thoth	Egyptian god of writing, magic, and science. He holds an important role in maintaining the universe (i.e. ensuring that the forces of order win over the forces of chaos).

- Titans** The sons and daughters of Uranos (sky) and Gaia (earth), as well as their children except for the later Olympians, in Greek mythology. They can be considered as the first pantheon of Greek deities, directly preceding the Olympians, and represent natural forces, e.g. Kronos (time), Themis (divine order), Mnemosyne (memory) or Helios (sun). In the Titanomachy, Kronos and his supporters are overthrown by Zeus and his followers (among whom were some Titans as well).
- Ymir** The ancestor of all jötnar (giants) in Norse mythology. Odin and his brothers kill Ymir and fashion the earth out of his flesh and bones.

Other concepts:

[Entropy](#) The average amount of information produced by a probabilistic stochastic source of data. If a process is perfectly predictable, it has low entropy.

[Exponential growth](#) The growth of a value with time is an exponential function:

$$x(t) = ab^{t/\tau}$$

with constant  $a$  as the initial value of  $x$ , growth factor  $b$ , time  $t$ , time constant  $\tau$ .

Many have noted that technological advancements occur in such a fashion. This has been referred to as [Accelerating change](#) or [The Law of Accelerating Returns](#).

[Utility function](#) The function specifying the preferences of an agent. Usually, the utility is fixed between the best possible outcome and the worst possible outcome of an action. All states in-between these can be assessed by the utility function.

For further details, see:

S. Russell and P. Norvig. Artificial Intelligence: A Modern Approach. Prentice Hall, second edition, 2003. Chapter 16.3.

Nanobots Robots constructed of nanoscale components.

Nanorobotics is an emerging technology with applications in many fields, most notably medicine, where [nanobots could be used to target cancer cells and destroy them](#), among others.

Further reading:

- Kurzweil, Ray. *The singularity is near: When humans transcend biology*. Penguin, 2005.
- Kurzweil, Ray, et al. *The age of intelligent machines*. Vol. 579. Cambridge: MIT press, 1990.
- Bostrom, Nick. *Superintelligence: Paths, dangers, strategies*. OUP Oxford, 2014.
- Russell, Stuart, Peter Norvig, and Artificial Intelligence. "A modern approach." *Artificial Intelligence*. Prentice-Hall, Egnlewood Cliffs 25 (1995): 27.