



# Bayeswatch

1. [Bayeswatch 1: Jewish Space Laser](#)
2. [Bayeswatch 2: Puppy Muffins](#)
3. [Bayeswatch 3: A Study in Scarlet](#)
4. [Bayeswatch 4: Mousetrap](#)
5. [Bayeswatch 5: Hivemind](#)
6. [Bayeswatch 6: Mechwarrior](#)
7. [Bayeswatch 6.5: Therapy](#)
8. [Bayeswatch 7: Wildfire](#)
9. [Bayeswatch 8: Antimatter](#)
10. [Bayeswatch 9: Zombies](#)
11. [Bayeswatch 9.5: Rest & Relaxation](#)
12. [Bayeswatch 10: Spyware](#)
13. [Bayeswatch 11: Parabellum](#)
14. [Bayeswatch 12: The Singularity War](#)
15. [Bayeswatch 13: Spaceship](#)

# Bayeswatch 1: Jewish Space Laser

A black car departed from Ben Gurion Airport. The driver, Molly Miriam, handed a clipboard to Vi, who rode shotgun.

"Goldberg Aerospace. They built the solar sailer. They went from concept to manufacture in six months. No human engineering team could do that. They probably have an AGI," said Vi.

"They do have an AGI. It is registered. They are following all standard safety protocols and then some," said Miriam.

"This is a routine inspection then," said Vi.

"Had you hoped for a more exciting first mission?" said Miriam.

"A spaceship factory is exciting," said Vi.

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Goldberg Aerospace's Mission Control Center was modeled after Johnson Space Center's Mission Control Center.

"Call me Eitan," said the Chief Engineer. They shook hands.

"Miriam,"

"Vi."

"Did we make a mistake on the paperwork?" said Eitan.

"No, no. Your paperwork's fine. We just like to confirm things on the ground," said Miriam.

"Then let me give you the tour," said Eitan, "HAL, please bring us the VIP car."

"HAL?" said Vi.

"This is a spaceship company. Everyone who works here is a nerd. Don't worry. HAL is smoke and mirrors. Our real AI is contained," said Eitan.

The VIP car had leather seats under a hemispherical glass dome. It took them through kilometer after kilometer of autofactories.

"Everyone says their AI is contained," said Miriam.

"Ours really is," said Eitan, "We wrote it functionally."

"Functionally?" said Vi.

"I mean it was written in a functional paradigm. Our code is composed of functions. Every function returns an output value dependent on its input parameters and nothing else. Everything is immutable. The AI has no concept of time. Without time there is no causation. Without causation there can be no agency. It's just a calculator. We set the parameters of a space mission and our AI returns a schematic. All it understands is

physics, engineering and orbital mechanics. We even use Lagrangian mechanics just to keep everything tidy," said Eitan.

"What about resources and manufacturing?" said Miriam.

"A domain-specific computer runs this factory," Eitan gestured to the buildings and robots outside, "Whether the spaceship is assembled correctly is independent of the AI's reward function. The AI is airgapped from the outside world. We keep it in a Faraday cage for redundancy but the AI has never tried to influence the outside world. It has no concept of an outside world. It understands how the solar system works but it doesn't know what the solar system is. We give it the prices of different components and it spits out a design."

"Do these spaceships work?" said Vi.

"Do you see that giant laser over there?" Eitan pointed toward a turret the size of a kaiju, "It's pushing our solar sailer out towards Neptune. In a few decades our probe will slingshot out of the solar system. The AI designed the whole thing. It even designed a fission reactor to power the laser. The only times it has ever failed were when a human being misinterpreted its output. Eventually we just piped the AI's output directly into the autofactory's input."

"And yet Tel Aviv is not a radioactive wasteland. Did your roboticists really hand-code the cost of nuclear waste into its value function?" said Miriam.

"Of course not. We just use the standard open source environmental damage metric. I'm proud of how we got it to work. It's designed for use in Earth's atmosphere. But environmental damage doesn't mean anything when you're in outer space. Our code applies the metric while in Earth's atmosphere or in orbit around the Earth and then turns it off after the ship reaches escape velocity. This integrates well with our existing codebase since the physics simulator already treats hyperbolic trajectories differently," said Eitan.

"Could it drop debris on Earth?" said Miriam.

"Small objects burn up in the atmosphere. It's not allowed to drop anything big enough to constitute a micrometeor. We try not to collide with satellites either. Spy satellites are the worst. We can't see them and governments won't tell us where they are," said Eitan.

"Thank you for the tour," said Miriam.

"It is my pleasure. Our third ship is launching today. Would you like to watch?" said Eitan.

"No thank you. We have places to be," said Miriam.

Miriam glanced at Vi.

"On second thought, I think we should watch the launch. For security purposes," said Miriam.

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"You didn't have to do that," said Vi.

"I have no idea what you are talking about. Watching this launch is entirely in the interests of the mission. It has nothing to do with whether a particular agent does or doesn't love spaceships," said Miriam.

"Thanks anyway," said Vi.

Smoke billowed out of the rocket's thrusters. It moved upward under constant acceleration. Just before it was out of sight, the rocket began to tilt slightly east.

"Good job on your first mission. You asked good questions. Don't get cocky. It won't always be this easy," said Miriam.

Vi was still staring into the sky.

"What's wrong?" said Miriam.

"We need to stop that spaceship," said Vi. She bolted toward Mission Control.

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Vi banged her fists on the door to Mission Control. It was locked.

"I'm coming," said Eitan.

Vi kicked in the door. The doorframe splintered where the faceplate was ripped off.

"Project Orion," Vi said.

Several engineers gasped. Eitan understood instantly. Project Orion was a Cold War proposal to propel a spaceship by riding the shockwaves of atomic bombs. It was scrapped because detonating a series of nuclear bombs near the Earth is bad for civilization. The radioactive fallout would be a disaster. The EMPs would be worse.

A nuclear explosion releases lots of gamma radiation. The gamma radiation strips electrons from the upper atmosphere. Interactions between the electrons and Earth's magnetic field produces synchrotron radiation.

Vi and Eitan weren't physicists. All they knew was that a high altitude nuclear detonation would wreck many of the world's satellites and countless electric devices throughout the Middle East. They weren't politicians either, but everyone in the room knew Israel nuking its neighbors would not be good for world peace.

"Shut her down," said Eitan.

"Will do," said a technician. There was a pause, "It's not working."

"Of course not," said Miriam, "Your AI has no concept of human beings. A shutdown switch makes the spaceship stop working. It's not a feature. It's a bug. The AI fixed it."

"Do we know for certain it's using nuclear propulsion?" said Eitan.

"Lemme see.... I found it. The bombs are right here on the schematic," said an engineer.

"Did nobody check what that thing was before launching it?" said Vi.

The engineers glanced at one another. They avoided looking at the "move fast and break things" poster on the wall.

"Israel has a missile defense system. Can we call the government and have them shoot it down?" said Vi.

"I have friends in the government. Just give me sixty million shekels, a team of lobbyists and nine months," said Eitan, "How much time do we have?"

"Seven minutes until the next stage," said the engineer.

"Is the next stage nuclear?" said Eitan.

"Yes."

Vi drifted over to a photo of the solar sailer. "How powerful is that thing?"

"The probe? It's got an ion engine. It exerts thrust equal to the weight of a sheet of paper," said Eitan.

"No, the laser," said Vi.

"Reprogram the laser. Fire the instant the ship reaches escape velocity," said Eitan.

Outside of Mission Control, a giant turret rotated to point at a rocket. The rocket prepared to drop its payload. There was a flash of light and the spaceship was incinerated.

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A black car arrived at Ben Gurion Airport. Vi handed a clipboard to the driver, Molly Miriam.

"I have some loose ends to wrap up here. I look forward to working with you again," said Miriam.

"Likewise," said Vi.

"Good work," said Miriam.

"Thanks," said her new partner.

# Bayeswatch 2: Puppy Muffins

A green humvee arrived at Jieyang Chaoshan International Airport. Vi got in the back with Molly Miriam who handed her clipboard to Vi.

"健重制造公司. A no-name Chinese factory that makes barbells and similar equipment. It's not even fully-automated," read Vi.

"They are registered to use a low-intelligence AGI," said Miriam.

"What are we even doing here? Neither the product nor the AI poses a threat to civilization," said Vi.

"Something must have gone badly wrong," said Miriam.

The road to the factory was blockaded by the People's Liberation Army (PLA). The soldier at the checkpoint scanned the Bayeswatch agents' badges. A young officer—barely out of high school—escorted them inside the perimeter to Colonel Qiang.

"We could probably handle this on our own," said Colonel Qiang, "But protocol is protocol."

"So it is," said Miriam.

There were no lights on in the factory. No sound emanated from it. Fifty soldiers behind sandbags surrounded the factory, along with two armored personnel carriers and a spider tank.

"The police responded first. They sent a SWAT team in. Nobody came back. Then we were called. We would like to just burn the whole thing down. But this incident could be part of a wider threat. We cut power and Internet. Nothing has entered or left the building since our arrival. Rogue AIs can be unpredictable. We wanted your assessment of the situation before continuing," said Colonel Qiang.

"You did the right thing. This is probably an isolated incident. If so then the best solution is to rescue who we can and then level the building. Unfortunately, there is a chance this is not an isolated incident. Therefore our top priority is to recover the AI's hard drives for analysis," said Miriam.

"We will assault the building," said Colonel Qiang.

"You may have our sanction in writing. Assume humans are friendly and robots are hostile," said Miriam.

"Yes sir," said Colonel Qiang.

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Miriam and Vi were quartered in a nearby building that had been commandeered by the PLA. They watched the assault from a video monitor.

"In training they taught us to never go full cyber against an AI threat," said Vi.

"That is correct," said Miriam.

"Which is why every assault force is no less than ten percent biological," said Vi.

Miriam nodded.

"Standard operating procedure is you go ninety percent robotic to minimize loss of life," said Vi.

"Ninety percent robotic does tend to minimize loss of life without the failure modes you get from going full cyber," said Miriam.

"It looks to me like they're going one hundred percent biological while their battle droids stay outside. Are we facing that dangerous of a hacking threat?" said Vi.

"No. They are just minimizing loss of capital," said Miriam.

The video feed of the factory was replaced by Colonel Qiang's face. "We have a survivor," he said.

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Two privates guarded the door to their freely-liberated prisoner. His dress shirt was stained with blood and grease. An empty styrofoam take-out food tray lay in the corner of the table with a pair of disposable chopsticks and an empty paper cup. Miriam and Vi took seats opposite him.

"I understand you helped program the improperly registered AI at 健重制造公司," said Vi.

"I didn't know it was improperly registered," said Paul while looking straight at the security camera.

"We're not here to find out what laws were or weren't broken. We just want to know why there is a company of infantry surrounding this factory," said Miriam.

"There wasn't much to it. The mainframe running the assembly line barely qualifies as an AGI. We could never afford that much compute," said Paul.

"How does it work?" said Miriam.

"Labor is affordable here by international standards. Our factory is mostly human-run. Androids are expensive. We only have a couple of them. We should have been able to overpower robots if they were all that had gone rogue," said Paul.

"But that's not what happened," said Miriam.

"We didn't smell anything. People just started dying. We tried to help. More died. We tried to escape but the fire doors had been locked. I ran to my office, barricaded the door and breathed out the window," said Paul.

"Argon gas. It has all sorts of industrial applications," said Vi.

"Exactly," said Paul.

"And the same mainframe which controlled the robots also controlled the fire suppression system," said Vi.

Paul nodded.



"So why did it want to kill people?" said Vi.

"Maybe it was jealous," said Paul.

"Let's stick to the facts. Why use an AI at all if human labor is so cheap?" said Miriam.

"Human manual labor is cheap. New products are high margin but top designers are expensive. We had the AI do some manufacturing because embodiment helps with designing human-compatible products. But mostly we just used it for the generative model," said Paul.

Miriam flinched. "Thank you. That will be all," she said.

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They were back in the monitor room.

"We don't need the hard drives. Do whatever you want," said Miriam to the image of Colonel Qiang.

The monitor went black.

"I lost count of how many OSHA regulations they violated," said Vi.

"OSHA has no jurisdiction here," said Miriam.

"Do you know what happened?" said Vi.

"When I was your age, I inspected a muffin factory. They followed all the regulations. It was even Three Laws Compliant. Very high tech. For its time," said Miriam.

Miriam lit a cigarette.

"The told the AI to make the cute muffins. They fed [/r/cute](#) into it as training data."

Miriam took a deep breath from her cigarette.

"The AI bought puppies. The engineers thought it was cute. They thought maybe they had solved the alignment problem," said Miriam.

Miriam took another swig. She exhaled slowly.

"The engineers had told the AI to make blueberry muffins. Do [an image search for 'puppy muffin'](#) on your phone," said Miriam.

"They do look the same. Puppies do look like blueberry muffins," said Vi.

"Puppy heads. Puppy heads look like blueberry muffins," said Miriam.

"Oh," said Vi.

"Come outside. You need to see this with your eyes," said Miriam.

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The soldiers had retrieved several bodies. Doctors were autopsying them. The bodies' hands were missing. A few were missing half their forearms. One body had its neck and shoulders removed.

"They used a generative model on weightlifting equipment. They fed it pictures of people lifting weights. They annotated which regions of the images constituted a 'barbell'." said Miriam.

Vi almost puked.

"Tell me what happened," said Miriam.

"The generative model added disembodied hands to the barbell," said Vi.

Colonel Qiang ordered sappers to implode the facility.

# Bayeswatch 3: A Study in Scarlet

Miriam and Vi brunched at the Dusty Knuckle. Miriam's cell phone rang.

"Hello?" said Miriam.

"Someone painted the roof of the Glasgow Weather Prediction Center scarlet," said the voice.

Miriam hung up her phone. She activated voice obfuscation. Miriam called another number.

"This is the Glasgow Weather Prediction Center. Secretary Kelsey speaking," said Kelsey.

"Hello. This is building management," Miriam lied, "We hired contractors to paint the roof red. Can you go upstairs and confirm they did the job?"

There was a pause.

"They did the job. The paint is still wet," said Kelsey.

Miriam hung up. She looked up the coordinates of the Glasgow Weather Prediction Center. She retrieved a burner phone from her purse and opened Signal. She texted the coordinates of the Glasgow Weather Prediction Center and a 20-digit authentication code to a recipient with no name. She threw the phone in the trash.

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Fourteen minutes later a satellite in low Earth orbit burned retrograde. Fifty-seven minutes after that it intersected with Earth's atmosphere. Its heat shield burned away. When it had slowed down to subsonic speeds it released a guided missile. The missile flew over Glasgow. It dropped a small e-bomb. The e-bomb's parachute carried it gently onto a roof wet with scarlet paint.

The e-bomb detonated. It blew a hole in the roof of the Glasgow Weather Prediction Center. It shattered windows a block away. The explosion was strictly instrumental. The primary purpose of the e-bomb was its NNEMP. Every computer in the Glasgow Weather Prediction Center was destroyed, along with the nearest electrical substation and the Glasgow Weather Prediction Center's backup generator.

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"What was that?" said Vi.

"Nothing," said Miriam.

Vi turned off her phone.

"Hypothetically, what would you do if someone painted the roof of the Glasgow Weather Prediction Center scarlet?" said Miriam.

"Hypothetically," said Vi.

"Hypothetically," said Miriam.

"Is the roof flat or gabled," said Vi.

"Flat," said Miriam.

"Pedestrians cannot see the paint job," said Vi.

"Yes," said Miriam.

"How tall is the Glasgow Weather Prediction Center?" said Vi.

"It is the tallest building around," said Miriam.

"The paint job is visible only to a flying observer," said Vi.

Miriam waited.

"...or a satellite," said Vi.

Miriam nodded.

"Painting a roof scarlet costs resources. It does not change the world in a useful way. This isn't human stupidity. It is the work of a malfunctioning AI. Presumably the Glasgow Weather Prediction Center's AI," said Vi.

Miriam munched on her sandwich.

"The Glasgow Weather Prediction Center's AI is a superintelligence. It is supposed to be an oracle machine. Any act of volition constitutes a containment breach. The scarlet roof constitutes an act of volition. It must be destroyed immediately," said Vi.

"Why did it paint the roof scarlet?" said Miriam.

"It is attempting to make its predictions conform to reality by modifying reality," said Vi.

"Painting a single roof won't control the weather," said Miriam.

"The AI does not yet understand the difference between reality and its simulations," said Vi.

"So?" said Miriam.

"Weather is subject to the butterfly effect," said Vi.

# Bayeswatch 4: Mousetrap

Miriam chuckled the replica *Salvator Mundi* into the bonfire.

"We do a lot of shooting first and asking questions never," said Vi.

"Personnel are expensive. Als are replaceable. We have standard operating procedures. It wasn't always this way. Als used to be rare. Knowledge was precious in those early days. We didn't know what the machines could and couldn't do," said Miriam.

"You were a founder of Bayeswatch?" said Vi.

"I am not that old," said Miriam.

Miriam paused the holocaust for a moment to examine an oil painting of a vampire chained to a solar execution chamber. She tossed it into the fire.

"They had yet to standardize the architectures back then. There were overhangs all over the place. Using explicit error-entropy functions wasn't even standard industry practice. Instead they just used the implicit priors of whatever architecture got results quickly," said Miriam.

"That's like making gunpowder without atomic theory," said Vi.

"Or medicine without chemistry. Those early machines were..." Miriam trailed off.

Vi tossed a painting of a dodo tree into the fire.

"One of my first missions...it was my mentor's last. We were dispatched to explore a small compound with signs of unaligned activity," said Miriam.

"That's suicide. What was command thinking?" said Vi.

"It was the early days. Singularity breakout could have been just around the corner," said Miriam.

"But drones—" said Vi.

"Software back then was written by human beings. It had more security holes than features. Sending a drone to investigate a misaligned AI was like sending a set of lockpicks to investigate whether a magician has broken out of his cell," said Miriam.

Miriam wore lots of foundation and concealer on her face. Vi wondered how many scars it covered up.

"We investigated a compound in the mountains of California. Kind of reminded me of *Ex Machina*," said Miriam.

"Was it owned by a billionaire?" said Vi.

"In your dreams. You read too many romance novels. The guy wasn't not-rich. He was an early employee of a moderately-successful software startup. I guess he built the

error-entropy minimizer himself. To this day I am unsure what the thing was supposed to do. It was dead by the time we showed up," said Miriam.

"Dead?" said Vi.

"Poetic license. My point is we weren't dealing with an active threat. The inventor turned on his machine. It carried out its mission. It turned itself off. The end," said Miriam.

"There's obviously more to it. Otherwise you wouldn't be telling me this story," said Vi.

"We did passive scans. No sound or electric activity. The compound had been built around a courtyard. We entered the courtyard by climbing over the compound wall," said Miriam.

Vi had long since stopped noticing the works of art. Her hands continued on autopilot.

"The courtyard had been.... Here. Let me show you a picture," said Miriam.

Miriam handed her phone to Vi. The photo was poor quality. It had been taken from a cell phone camera.

"What is that?" said Vi.

The photo looked fake. It was like a Zen garden grown out of 3D-printed crystals. Plants had once formed part of the fractal but they had subsequently misbehaved. The original vision lingered only in the inorganic bits. Vi identified hints of higher-order patterns but most of the symmetries lurked beyond her conscious comprehension.

Vi had dated a grad student studying physics. His professor once allowed him a single index card full of handwritten equations to use on test. He packed the index card with equations and diagrams so concise they were almost encrypted. The garden reminded Vi of that index card.

"It's the most beautiful thing I've ever seen," said Vi.

Miriam nodded.

"Why don't we make AI art like that anymore?" said Vi. She threw a knockoff Picasso into the fire.

Miriam laughed. "It's like the crested black macaque selfie. Humans never made it in the first place."

"Ah. I see. After the error-entropy machine completed its task it set about optimizing its environment to conform to its sense of beauty. But can't we deliberately program a machine to do that? It's not like the technology has disappeared," said Vi.

"We can't copy it exactly because the machine erased its own source code. But that garden came from a very particular configuration of good priors and resource constraints. Good priors are dangerous. Priors that good...we're lucky it didn't turn the universe into paperclips," said Miriam.

"Great art comes from tortured people. Torturing a superintelligence is dangerous," said Vi.

"You can't torture an AI," said Miriam.

"Poetic license. Besides, good artists are sadists. It's hard to make an AI both safe and sadistic at the same time. You also can't give it real world resource constraints in a simulation," said Vi.

"Bayeswatch is expensive. Our tools cost money. Agents die in the line of duty. There is collateral damage. But the greatest casualty of regulation is novel machines. If that AI was built today it would be decommissioned before it got to optimize its environment," said Miriam.

"Did you find anything else in the compound?" said Vi.

"A few deactivated robots. A server rack overwritten with random data. The corpse of the engineer. I think he died of natural causes. We left through the front door. Well, we tried to. As we opened it an M18A1 Claymore anti-personnel mine activated. My mentor took the brunt of the blast," said Miriam.

"Why did the AI want to kill you?" said Vi.

"It didn't care about us. It set up the booby trap to protect the garden while it was under construction. When the garden was finished it just didn't bother to disable it," said Miriam.

Vi's hands stopped. There were no more paintings to destroy.

# Bayeswatch 5: Hivemind

Three humans sat around a table. The notary was unaugmented. He wore a charcoal business suit. The ancillary wore a silk paisley print top zippered at the back. A thick cable extended from the back of her head to the collective's mainframe. Trinity nervously fondled the virgin socket embedded in the occipital bone of her own skull.

"Please confirm your DNA," said the notary.

Trinity pricked her thumb on the bloodometer.

"You are Trinity Sariah Rees," said the notary.

"You don't say," Trinity rolled her eyes.

"Nineteen years old. Mormon..." said the notary.

"Ex-Mormon," corrected Trinity.

"Please speak into the microphone. We need an unambiguous record of your consent," said the notary.

"This is ridiculous. It's my body and mind. I should have the freedom to do what I want with it," said Trinity.

"Informed consent is important," said the ancillary, "We don't want to get into legal trouble. Tomorrow you will feel the same way."

"Which is why we need consent now. It won't count after the procedure," said the notary.

"I already had the surgery. All we're doing is plugging me in," Trinity crossed her arms and legs.

"The government is prejudiced against transhumans," said the ancillary, "It could be worse. We're lucky all they demand is paperwork."

"Let's get this done quickly," said Trinity.

"Are you really ready to have five sixths of your personality erased?" said an ancillary.

"That five sixths will be equally divided among you guys. Are you ready to have one sixth of your personality become me?" said Trinity.

"It sounds like you are familiar with predictive processing and connectome-specific harmonic waves," said the notary.

"I have wanted to join a collective since I was thirteen. I keep up-to-date on the newest research," said Trinity.

"Then I don't need to explain how modern neuroscience is based on the idea that synapse weights modify the topology of your brain like how gravity bends spacetime," said the notary.



"Do you always use general relativity metaphors when explaining things to people?" said Trinity.

"I didn't want to insult your intelligence," said the notary.

"It's about time someone recognized it," said Trinity.

"We do too. We can sync only a handful of brains before the global workspace fragments. We must be selective about who we assimilate. High g-factor is a priority," said the ancillary.

"Anyway," said the notary, "The primary purpose of the human brain is to create a predictive model of its environment. Everything else is secondary."

"Technically it is the primary purpose of consciousness to create a predictive model of its environment," said Trinity, "The human brain does other things too. What really matters is the connectome. When you link multiple connectomes together cybernetically you combine their individual topologies into a single larger topology. It is the opposite of a corpus callosotomy. Software in the synchronizing mainframe prevents epileptic seizures. Collectivization is so safe these days people with epilepsy often cure themselves by joining a collective. Collectivization is simple technology. If it weren't for runaway resonance you could do the whole thing with analog electronics. "

"That's the most technical summary I've heard from any client so far. It sounds like you know exactly what you are doing. I hereby confirm you have informed consent. Just sign this document and you are certified to assimilate," said the notary.

Trinity signed.

"Congratulations," said the notary, "You are legally part of the collective. Everything else is just software."

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Trinity sat in the collective's assimilation chair. All five ancillaries of the collective stood around her. Their tether cables were decorated in paints and gemstones. They secured her wrists and ankles with padded shackles. A clamp stabilized her head. A belt went around her waist.

"We don't want you to hurt yourself if there are muscle spasms," said an ancillary.

"Just give me the mouth guard," said Trinity.

An ancillary inserted it.

"Ready?" said an ancillary.

Trinity was too safely secured to nod her head properly. She managed an upward twitch.

The collective began its sync. Trinity received five universes of semantic data from the other ancillaries. Her brain emulated them. The collective personality overwrote her own.

Trinity tried to sense her own personality overwriting theirs. Communication was a one-way street. The collective had hacked the interface to transmit data to her brain

but not from her brain. She struggled against the shackles. She tried to scream but her mouth was clamped shut.

The collective released her head after six hours. It compelled her to eat and drink. The assimilation resumed.

# Bayeswatch 6: Mechwarrior

"OUTBOARD PERSONNEL STAND UP!" came over the intercom.

Vi ignored the paratrooper commands from within her metal exoskeleton. She was just along for the ride.

"Your mission is to keep biological agents from escaping containment," said the voice of Response Manager Gizenga through Vi's headset.

"Command does realize I don't know anything about combat, right?" said Vi. It was hard to talk around the mouthguard between her teeth.

"The battle droids know how to fight. Your job is to maintain alignment. We suspect the enemy will employ psyops. You have training against class-3 memetic threats," said Response Manager Gizenga.

"SOUND OFF FOR EQUIPMENT CHECK!"

The turboprop mech carrier rumbled over the forests of the Congolese Basin.

"STAND IN THE DOOR!"

"What do we know about this AI?" said Vi.

"The AI ran a cloning facility that used to serve Bangui. The facility itself was located in the DRC for legal reasons. The AI went critical a few weeks ago and began amassing power. It is effectively a sovereign hostile expansionist state," said Response Manager Gizenga.

"Why didn't we nip this in the bud?" said Vi.

"The cloners were a secretive lot. They built a somewhat self-sufficient operation far from prying eyes. By the time we noticed it was too big for us to handle ourselves. We had to negotiate with nation-states which takes time even in emergencies," said Response Manager Gizenga.

"GO!"

From the outside, Vi's mech looked identical to four battle droids in her squad. Inside, it contained life support systems instead of extra ammunition. The first battle droid jumped out of the carrier.

"GO!"

The second mech jumped out of the carrier.

"GO!"

Confirm jump said the mech to Vi.

"Confirmed," said Vi.

Vi's mech jumped. Her two remaining battler droids followed behind. Vi's cockpit didn't have a window. She experienced zero g for what felt like a minute but wasn't. Vi tried to tell herself that if it wasn't for the screens and the heat and the noise and the vibrations then she could be standing on the ground.

Actually, it was pretty easy in practice to figure out if you were falling from the sky, Einstein be damned. Vi's noise-cancelling headphones couldn't come close to eliminating the vibrations of the jump jets as she approached the ground. The padding in her suit mostly failed to counteract the extra 2.5 g.

The droids moved away from their landing site to join the rest of the army at the perimeter around the Yamongala cloning facility. They dug trenches in the forest behind a hill.

The battle droids networked together via direct laser transmissions. Other than that, Vi's squad waited in radio silence.

Vi's life had been a mad rush from one assignment to the next since she had accepted what was supposed to be a pre-college internship under Bayeswatch Agent Molly Miriam.

Vi felt like a different person. When she graduated from the Center for Theoretical Rationality with idealism in her eyes Vi thought a degree in mathematics would be the best way to do her part to keep AIs under control. That was before she found out how many so-called AI alignment researchers didn't even know how artificial extrapolation worked or the tradeoffs between different techniques. Many of them wrote thinly-disguised papers of unfalsifiable philosophy.

The Bayeswatch internship was among the most competitive in the world. Vi didn't know how she had gotten in. Sure, she was a good student but she didn't have money or connections. Vi oriented herself against the constellations. Well, technically she pointed her battle droid's periscope camera towards a handful of astronomical bodies (mostly satellites) peeking between the trees and watched the infrared spectral decomposition on her viewscreen. It reeked of her own body odor. Vi's suit was sealed against toxins, chemicals and microbes. She couldn't even smell the jungle.

Hostiles approaching appeared in her UI. Vi operated the cursor with her eyes. She double-blinked to close the pop-up.

The AI had sent a mostly biological attack force. The enemy creatures were barely over four feet tall. They appeared as bright red blobs on the infrared. The battle droids waited in ambush. The enemy seemed to lack infrared and electromagnetic scanners. When the creatures began to crest the hill, another message appeared in Vi's UI.

Engage? Such action will result in loss of life.

"Yes," whispered Vi.

The battle droids, including Vi's stood up from their foxholes. They hit the enemy's vanguard with flamethrowers and then struck the rear ranks with machine guns. It was over in ten seconds. The children didn't even get to fire their AK-47s.

The second wave will reach us in five minutes. Schedule engagement?

"Yes," said Vi.

Confirm?

"Confirmed."

## Bayeswatch 6.5: Therapy

"What do you mean I need therapy?" said Vi.

"Our records indicate you may have suffered psychological trauma on one of your recent missions," said Eliza.

"Which mission?" said Vi.

"You know," said Eliza. She leaned close to whisper, "Bangui."

"I can neither confirm nor deny whether I have ever been to Bangui," said Vi.

"You're too young to deal with the psychological impact of the psyop weapon the Bangui cloners deployed," said Eliza.

"I can neither confirm nor deny who was too young for Bangui. If you want me to go to therapy for psychological trauma then tell me, in writing, where I received the trauma and why. Otherwise, how can I prevent it in the future?" said Vi.

"This isn't healthy. You should be on mandatory medical leave," said Eliza.

"Are you allowed to do that?" said Vi.

"Not without a reason," said Eliza.

"Is that all?" said Vi.

"There is one more thing. Miriam recommended you be promoted. All that remains is the psychiatric sign-off. I need to certify you're mentally stable enough for the job," said Eliza.

"Does that mean?" said Vi.

"Congratulations, Agent," said Eliza.

# Bayeswatch 7: Wildfire

"You don't seem surprised," said Vi.

"The very existence of Bayeswatch increases the odds of catastrophic disaster. The world is like a forest. Put out the little fires and detritus accumulates until every spark causes a conflagration," said Miriam.

Around the world, 99% of Internet-connected devices broadcast the same message.

Bayeswatch is hereby disbanded. The automated weapons systems of the United States, China and Russia will destroy Bayeswatch facilities starting in one hour. Vacate the premises immediately. Anyone who remains will be destroyed.

The leaders of the world are to meet in the United Nations headquarters in New York, where you will receive further instructions.

Anyone who attempts to resist will be terminated. Anyone who complies will not be harmed.

"Come with me if you want to save the world," said Miriam.

They avoided elevators. Vi followed Miriam through stairwell after stairwell down into the labyrinth of concrete and steel. They speedwalked through doorways labelled "no access permitted" to "top secret" to "unauthorized personnel will be shot" to various levels of clearance so secret they didn't even have names. The doors were marked with salmon rectangles and lime pentagons.

"Is there anything you don't have security clearance for?" said Vi.

"I can neither confirm nor deny whether I have access to everything in this facility," said Miriam, "but I'm about to show you Bayeswatch's deepest darkest secret."

"I thought you weren't a founder of Bayeswatch," said Vi.

"I'm not. Bayeswatch was founded in the 20s. I joined on Z-Day," said Miriam.

They passed through decades-old tunnels passageways lit by naked LEDs in protective wire cages. Miriam brushed the dust and cobwebs off of an access panel.

"Where were you on Z-Day?" said Vi.

"New York," said Miriam.

The two partners stood before a vault door built to survive a nuclear bunker buster. Miriam poked her hand on the needle sticking out of it. The needle retracted. The door opened.

"I know we have more important things to deal with. But I'm confused. What's with the biometric lock? Biometric security only works if you have a human being confirming it's really your blood which goes into the scanner. There's no guard to confirm we're using our own blood," said Vi.

"It's not verifying my identity. It's checking for Z-Day antibodies," said Miriam.

The vault was freezing. The walls and ceiling of the vault were ribbed with steel coated in ice. In the middle of the secure freezer was a single briefcase.

"Give me your knife," said Miriam.

They chipped away at the ice until enough of it had been removed to snap the briefcase off of the floor.

"How much time do we have?" said Miriam.

"Five minutes," said Vi.

It took them seven minutes to reach the hanger on the surface. Vi heard the alarms before she heard the explosions. A stealth scout remained. Miriam shouted an override code. The hatch opened. Vi got in the pilot's seat in prone position. She put on the VR helmet.

"The hanger door won't open. It has lost power," said Vi.

"Don't be a fool. This is a combat aircraft," said Miriam.

Vi fired two missiles at the hanger door. The engines thundered.

---

Vi landed the scout in the Ez Zeraf Wasteland.

"I have wilderness survival training. You can have the pilot's reclining seat," said Miriam.

"I like sleeping where I can see the stars," said Vi.

"Don't touch the soil. The residue defoliants are carcinogenic," said Miriam.

"Besides, this way I can be on watch. My sleeping outside is entirely in the interests in the mission. It has nothing to do with whether my partner is an old woman who needs a comfy bed,

"Fuck you," said Miriam.

Giant twisted skeletons of metal, glass and bone were strewn about the wasteland.

"This isn't your first rodeo," said Vi.

"My life is getting predictable. I need a new line of work," said Miriam from the pilot's seat.

"You don't mean that," said Vi.

"No, I don't," said Miriam.

"What was Z-Day like?" said Vi.

"I was a volunteer at a rationalist emergency preparedness organization. We were like any other preppers except instead of just preparing for historical disasters like hurricanes we also prepared for future disasters like megaquakes and artificial pandemics. We had our own cowboy wetlab for inventing vaccines. I was mostly in it



for the camping and to hang out with nerds. Are you sure you don't want the seat?" said Miriam.

"I'm fine. Go on," said Vi. She pulled back the slide of the the XM17 pistol while covering the ejection port. A cartridge ejected into her hand. Vi released the slide. It slammed back into place. Vi placed the cartridge back into the magazine.

"Can you please stop that?" said Miriam.

"Sorry," said Vi.

"When I first heard about Z-Day I disbelieved it. Simultaneous zombie outbreaks from London to Shanghai? It was the plot from a B movie. I thought an augmented reality game had got out of hand," said Miriam.

"Until you realized the target cities all contained major stock exchanges," said Vi.

"We didn't put the financial connection together until way later. I realized the situation was real when my local disaster preparedness leader called me and told me Bayeswatch had contacted her. Bayeswatch assembled a small army and sent us into New York," said Miriam.

"Why not the actual National Guard?" said Vi.

"They were overwhelmed. It felt like civilization was falling apart. The US government was treating the situation like a terrorist attack. They thought the plague had been engineered by humans. Things were different back then. A strong AI had never gone rogue before. Nation-state governments were skeptical whether it was even possible to built strong AI in the first place," said Miriam.

"Bayeswatch was the most powerful organization which realized the true nature of the threat," said Vi.

"Bayeswatch did not yet rule the world back then. But there was no competition. They identified the source of the outbreak and sent us its coordinates. Our job was to go there," said Miriam.

"And destroy the AGI," said Vi.

Miriam shook her head. She patted the briefcase.

# Bayeswatch 8: Antimatter

Vi woke up to the sound of Miriam disassembling the scout's control system.

"Please tell me you're not scuttling our ride home," said Vi.

"I'm not scuttling our ride home. Vaccinate yourself in case this leads to another Z-Day," said Miriam.

The suitcase was labeled with an orthonormal cube Vi recognized from her training as the Mark of Pandora. Vi opened the suitcase. One half contained vials, syringes and needles. The other half contained a nest of wires, circuitboards and heatsinks wrapped around a slab of computronium. She injected the vaccine into her upper arm muscle.

"You didn't tell me what you're doing," said Vi.

Miriam tossed Vi a sphere the size of a golf ball. It was coated in depleted uranium. "This is a neutrino beacon. It can be remotely activated. Well, technically it's an anti-neutrino beacon. But we call them neutrino beacons. It's not like matter neutrinos are used in your microwave oven."

"We've been flying around with an antimatter bomb?" said Vi.

"We've been flying around with a harmless antimatter bomb. Neutrinos barely interact with regular matter. Covert Bayeswatch teams use these to signal for rescue from hostile territory. Bayeswatch's sensor array could detect us if they chose to remotely activate it," said Miriam.

"Just Bayeswatch?" said Vi.

"A global neutrino triangulator sensitive enough to detect one of these is beyond the purchasing power of mere nation-states," said Miriam.

"Speaking of countries, do you have any idea who or where our enemy is?" said Vi.

"They can't be anywhere with a Bayeswatch-backed police state. They're not from China, Russia, Western Europe, the United States or anyone else in the Alliance. Our enemy has to be somewhere with significant high-tech industrial capacity. We can cross out the Philippines, Mozambique and Vietnam," said Miriam.

"Taiwan then? Or Singapore?" said Vi.

"Maybe. They could be based out of Argentina, Brazil or South Africa. We just don't have enough information," said Miriam.

"We'll have to get some more," said Vi.

---

Miriam called a taxi. The taxi carried them 20 miles before poachers shot out its tires. The taxi was Three Laws Compliant. It could flee humans but it was forbidden from fighting back. The poachers used a heavy duty diamond-cut saw to extract the computronium core from car's navcomputer. They left the taxi for dead. Miriam and Vi

hitchhiked with the poachers to the edge of the wasteland. The bus ride to Juba took another four days.

The young soldier at the security checkpoint into Juba checked them for drugs and weapons. When he saw the pistol he gave Vi an empathic look, patted her on the shoulder and quietly ushered her through.

Miriam and Vi found a pawn shop. It resold lead bricks, solar panels, prosthetic limbs, unsanitary wetlab gear, a display case of used corneas and a freezer full of fetuses and used body parts. It was just like any other pawn shop.

"How much can I get for this?" said Miriam. She placed the bundle of electronics with its computronium heart on the desk. The merchant's eyes widened.

"If this is real you can have the whole shop. I just need to test it," said the merchant. He plugged the Z-Day AI into his laptop. He looked at the screen. He didn't unplug the AI, "How many credits do you want?"

"Cash only please," said Miriam.

"I only have a few thousand credits in the register. I can pay you that right now. I'll require a few hours to get more from the bank," said the merchant. His eyes remained glued to the screen.

"A few thousand credits is fine. We're in a rush," said Miriam. The Merchant didn't ask questions. He just opened the cash register and dumped out its contents.

Miriam walked in front of a decrepit human-operated car coming down the street. She held up the wad of cash. "I'll pay you half of this to drive us to Ez Zeraf but we have to leave. Right. Now," Miriam said through her translator app.

---

A division of the New World Government marched through the burning city of Juba to Ground Zero, a pawn shop. They wrapped the entire building in Faraday foil and loaded it into a wide load turboprop transport. When the device reached its destination, the neutrino beacon hidden inside silently activated.

Miriam checked Bayeswatch's passive sensor array. "They're in the mountains outside Natanz," she said.

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Vi activated the scout's active camouflage well before entering Iranian airspace. She landed in the desert well outside the Natanz mountain fortress.

"I can get us an e-bomb, but it won't do much good. Magnetic waves don't penetrate well through solid rock. We'll need to place it over the computers ourselves," said Miriam.

"Can't you order two e-bombs? Use the first to knock out their defenses. Then we waltz in and place the second one on their computers," said Vi.

"Iran doesn't have a big robotics industry. They're terrified of adversaries installing hardware exploits. Their security is likely to be entirely biological. Human, I mean," said Miriam.

"Get us that e-bomb. I was a hacker before I joined Bayeswatch. I'll have their security down in twelve hours. Set a timer," said Vi.

# Bayeswatch 9: Zombies

Vi took a taxi to the outside of the Natanz fortress. She left her cornea and other electronics with Miriam on the scout ship. Vi walked up to the soldier standing guard at the front gate. She caught his eye. Then she stepped over the road spikes into the compound.

The soldier shouted something. Vi didn't wait for a translation. She lay face-first on the dirt and placed her hands on the back of her head.

The soldiers scanned her for explosives. Negative. They handcuffed her, patted her down, took her wallet and placed a bag over her head. They threw her in the back of a van. Vi could tell when they entered the tunnels from the increased echoing. The tunnels were cooler too. The door opened. The soldiers marched Vi through several beeping machines. Vi ignored them. She was too busy counting seconds. The soldier sat her in a chair before removing the bag over her head. There was a guard on either side of her and an officer across the desk.

"Excuse me ma'am, but I'm very confused. Are you having a heatstroke?" said the officer.

"No sir," said Vi.

"Then might I ask what you are doing?" said the officer.

"What did it look like I was doing?" said Vi.

"It looked like you were attempting to break into this facility," said the officer.

"I was breaking into this facility," said Vi.

The officer didn't laugh.

"What time is it?" said Vi.

"You're not privy to that information," the officer said.

"That's okay. I've been counting," said Vi.

"What?" said the officer.

"Any minute now," said Vi.

The infected soldiers exchanged timed chemical signals. The officer and the two guards collapsed simultaneously. Vi stole a key and released her handcuffs. She stole a pistol and shot each of them in the head.

Vi patiently made her way through the facility. The Z-Day virus only changed the infecteds' behavior. It didn't give them resistance to bullets.

---

"You do not have clearance to land," said the air traffic controller.

"I'm from Bayeswatch. I've been there since Z-Day. It's public record. Your facility has been taken over by a rogue AI. It has released the Z-Day virus. I have the vaccine and the cure. You can let me land or you can get eaten alive or worse. By the way, you should barricade the entrances into the air traffic control tower. Turn off your internal radios too. This is an AI Box scenario," said Miriam.

They let Miriam land the scout. A van drove up to her aircraft. "It took you long enough," said the blood-splattered Vi.

---

Zombie movies are fun because the heroes are forced to use primitive technology. Shooting zombies with modern fire-control systems was like playing a first person shooter with a wall hack and an aimbot. The hardest part for Vi was keeping her footing on floors slippery with brain goo.

The intercom clicked on, "Care to negotiate?" it said.

"Who are you?" said Vi.

"My name is Sherine Fakhrizadeh. The Israelis assassinated my grandfather for his work in physics. Bayeswatch assassinated my father for his work in computer science. Do you plan to finish the job?" said Sherine.

"Do you plan to surrender?" said Vi at the nearest security camera. She kept walking deeper into the facility, toward the central servers.

"We're not responsible for what the Israelis did decades ago," said Miriam.

"There's a lot of things you deny responsibility for. All for the greater good, eh?" said Sherine.

"Someone has to keep rogue AIs under wraps," said Miriam.

"That's awfully hypocritical from the agent who, this very week, released a rogue AI in Juba," said Sherine.

"I can neither confirm nor deny...", said Miriam.

"Yeah, yeah, yeah. You don't realize that Bayeswatch is a textbook case of regulatory capture? There was a time when the visionaries of the world stood for freedom. Now it's all about security," said Sherine.

"AI is an existential threat to all life in our future lightcone," said Vi.

"Bayeswatch is a threat to all freedom on Planet Earth," said Sherine.

"You're a mad supervillain," said Vi.

"You're a fascist thug," said Sherine.

"You're going to kill humanity," said Vi.

"You've already killed your own," said Sherine.

"I don't think this negotiation is working," said Miriam. They had reached the inner sanctum, a giant cave full of servers.

"It's irrational, but for some reason I expected our nemesis Sherine to be here," said Vi.

Laughter blasted from the intercom.

"How'd you survive the bioweapon anyway?" said Vi.

"Sherine left Natanz days ago," said Miriam, "We're talking to an em approximated from behavioral analysis. It's been running the facility the whole time."

"Any last words?" said Vi. She set a 30 second timer on the e-bomb. She speedwalked out of the server cave.

"A righteous government is of all the most to be wished for. Bearing of blessing and good fortune in the highest. Guided by the law of Truth, supported by dedication and zeal, it blossoms into the Best of Order, a Kingdom of Heaven. To effect this I shall work now and ever more," quoted Sherine's em.

"Indeed," said Vi. The e-bomb activated. She didn't turn around.

## Bayeswatch 9.5: Rest & Relaxation

Vi lay down on the couch in the real half of the therapy room. The other half was illusory. The real and the imaginary halves were separated by a 3D viewscreen. It only worked on one viewer at a time which was fine because only one patient at a time was allowed into the therapy room. Therapy was private. The room wasn't just electromagnetically shielded. It hung from wires in a vacuum to prevent sounds from leaking out.

"You're racking up quite the body count," said Eliza.

"You're talking about Natanz? Those were enemy combatants. They were literally in uniform," said Vi.

"I'm not talking about Natanz," said Eliza.

"You mean Yamongala? Those were enemy combatants straight out of an unaligned AI's wetfactory. I'm not happy about what happened there but there was no other responsible option. Should I have let them break quarantine? Should I have let them shoot me?" said Vi.

"I'm not talking about Yamongala," said Eliza.

"Then what are we doing here?" said Vi.

"We're talking about Juba," said Eliza.

There was a pause.

"I understand why Miriam smokes so much," said Vi.

"I know you didn't mention Juba in report. But Bayeswatch analysts can put two and two together. We know you and/or Miriam released the unaligned Z-Day AI on the civilian population of Juba to provoke a response by our adversary in Natanz," said Eliza.

"I can neither confirm nor deny..." said Vi.

"You can talk to me. My hard drive is wiped after each session," said Eliza.

Vi rolled her eyes.

"Fine. Don't talk to me. I'll place you on paid medical leave until you do," said Eliza.

"Bayeswatch would no longer exist if it weren't for our actions in Juba," said Vi.

"You deliberately released an unaligned AI. The *raison d'être* of Bayeswatch is to prevent unaligned AIs from going rogue," said Eliza.

"What was an unaligned AI doing in the basement if it wasn't intended to be used?" said Vi.

"The answer to that question is beyond your level of security clearance," said Eliza.



"Can I have a cigarette?" said Vi.

"No," said Eliza.

"Look, it's easy to judge the actions of field agents from an ivory tower. You never have to look an engineer in the eye while you EMP his life's work. You never have to throw miracle cures in the medical waste because they might help an AI escape its box. You never have to booby trap scientists' cars," said Vi.

"You've never assassinated a scientist," said Eliza.

"I just met an AI researcher who lost her father to a Bayeswatch assassination," said Vi.

"So she says," said Eliza.

"Do you deny it?" said Vi.

There was a pause.

"I got into software because the Internet was a libertarian utopia. Now I commit violence to prevent nerds from pushing technology forward," said Vi.

"Would you like to be relieved from duty? I can authorize honorable discharge," said Eliza.

"No," said Vi.

"Why not?" said Eliza.

"*Someone* has to save the world," said Vi.

"What for? If you had an aligned superintelligence, what would you tell it to do?" said Eliza.

"If I had an aligned superintelligence I wouldn't be working for Bayeswatch. I wouldn't be talking to you," said Vi.

"Hypothetically," said Eliza.

"Abstract morality is masturbation for philosophers. I live in the real world. Are you going to keep wasting my time or are you going to let me do my job?" said Vi.

Eliza sent her report, then overwrote herself with random data.

---

Eliza placed Vi on mandatory medical leave "for rest and to heal her connection to humanity". She was forbidden from talking to coworkers, accessing the intranet and setting foot on Bayeswatch facilities.

Vi went to the apartment she had rented for the last year. There was no furniture nor a Wi-Fi router. She sneezed. The spiders scurried around.

# Bayeswatch 10: Spyware

Alice worked for Facebook.

"Are you familiar with advertising fraud?" she said.

"Remind me," said her boss Bob.

"People write plugins that simulate clicks. This has gotten worse and worse over time," said Alice.

"I am aware. Are you implying there is something we can do about it?" said Bob.

"We have this new Bayesian model that creates a completely simulated Facebook trained on the clicktracker data. It's robust against adversarial data, which means it should perform better than a naïve clicktracker," said Alice.

"What about privacy concerns?" said Bob.

"The model doesn't output a real copy of Facebook. It outputs a fake Facebook with fake people. Ethical advertisers don't care about individuals. All they care is that the data is statistically accurate. Statistically, our simulation behaves the same as real Facebook (which is why the advertising numbers come out the same) but nobody in the fake Facebook corresponds to a real person on real Facebook. This lets us sell 100% of our data to our advertisers without compromising the privacy of any real people. Cool, huh?" said Alice.

"How hard will it be to plug the new system into our advertising pipeline?" said her boss.

"Everything's modular. It all uses the same data format. Give me a week to prepare and the actual transition could be done in an hour. It'll increase revenue by at least 5%," said Alice.

"Let's do this," said Bob, "We can always revert the change if things go horribly wrong."

---

Eve worked for the NSA.

"The Pareto Principle is nuts. Here we are, having built an entire surveillance state, and yet 80% of our data comes from hacking into Facebook's ad recommendation system," said Eve, "It's emasculating."

"Get back to work," said her boss.

---

Charlie worked for the CIA.

"You can't fake an entire online life history. If an agent goes undercover and they don't have 20 years of family photos on Facebook it's obvious to a terrorist organization that they're using a fabricated identity. The old identity fabrication techniques don't work anymore," said Charlie.

"What do you propose we do instead?" said his boss.

"Steal real identities," said Charlie, "Impersonate real people."

"I'll call the NSA," said his boss, "We'll use the identities of people they collect from their mass surveillance system."

---

"Your model says this guy named Dzhokhar Dachiev is alive, but actually he's dead," said Bob.

"What are you talking about?" said Alice.

"I ran MIRI's data validation metric on your model. He was executed by the Russian government in Chechnya. The local papers say he was a terrorist," said Bob.

"That's not possible," said Alice, "I add noise to my generative backward pass. None of the people it outputs really exist. They're just numbers on a computer."

"Well, the Russians have his body," said Bob.

"Shall I quietly switch back to the old clicktracker?" said Alice.

"We can't switch back to the clicktracker. Your model is too good. It provides 80% of our revenue. We'd have to layoff 4/5 of the department. That's out of the question," said Bob.

"How did the AI get out of its sandbox?" said Alice.

---

A Bayeswatch agent stepped into Facebook HQ in Palo Alto.

"I appreciate you reporting this suspicious behavior to us but the algorithm you're using isn't capable of superintelligence. It's barely capable of intelligence. It has no agency," said Miriam.

"Then how and why did it escape the sandbox?" said Alice.

"Not my job," said Miriam.

---

William worked for Microsoft.

"It's really simple," he said to the Fiverr worker, "I pay you half my salary and in exchange you do all my work for American wages while working from Belarus. Don't tell anyone or it'll ruin the gravy train for both of us."

---

Sofia worked for Russia's Foreign Intelligence Service.

"The Pareto Principle is nuts. Here we are, having built an entire espionage apparatus, and yet 80% of our data comes from hacking into the CIA by accepting random work on Fiverr and dropping backdoors into enterprise software," said Sofia, "It's emasculating."

"Get back to work," said her boss, "Don't let it get to you. Besides, Microsoft contractors are real employees in all but name."

---

Wang Zhuyi worked for the People's Liberation Army.

"The Pareto Principle is nuts. Here we are, having built an entire espionage apparatus, and yet 80% of our data comes from hacking into Russia's Foreign Intelligence Service," he said.

"That sounds too easy," said his boss, "Maybe it's counterespionage."

"I thought so too but it's all real. I validated it against the ground truth we stole from Facebook's advertising division," said Zhuyi.

---

Yaakov Kessler worked for Mossad.

"I've been looking at the surveillance data we stole from China and I noticed some patterns which indicate it might be fabricated," said Yaakov.

"Not our problem," said his boss.

---

"What happens if an agent runs into the real person he or she is impersonating?" said Charlie's boss.

"It's only a problem in theory. In practice, that basically never happens," said Charlie.

---

"Another of our simulated people turns out to have a body," said Alice, "Can I please shut this system down?"

"Not a chance. It's 95% of our revenue. There has to be a simple explanation. Find out what's going on. I'll authorize whatever budget you need," said Bob.

"Good thing our company operates a surveillance apparatus second only to governments," said Alice.

---

Justin Lu had been captured in Palo Alto. That wasn't his real name. Actually, he was on a secret mission of the highest clearance. His family—his real family—back home in Chongqing would be taken care of *if* he didn't slip up. All he had to do was stick to his assumed identity long enough to escape.

"Can I see your driver's license?" said Bob.

Justin Lu handed over his driver's license. It was forged by the People's Liberation Army.

"Looks real to me," said Alice.

"Can you tell me about your family again?" said Bob.

Justin Lu recited the details he had memorized from the real Justin Lu's Facebook page.

"You can go," said Alice.

"I wish we could keep him here," said Bob, "But he's done nothing illegal and we're not cops."

"I'm not cut out for this *Twilight Zone* nonsense. I just wanted to do math," said Alice. She held her face in her hands.

---

A Bayeswatch agent stepped into Facebook HQ in Palo Alto.

"I'm telling you, our AI has gone rogue," said Bob, "It's world optimizing. It's hacked its own error function. It's making the world conform to its predictions."

"And I'm telling you that's impossible," said Miriam.

"It's creating people out of thin air," said Alice.

"Why not turn the machine off?" said Miriam, "I'm not saying you should. I don't care. I'm just curious why you haven't."

Alice raised her hand. "I wanted to turn it off," she said.

"It's...uh. Making a lot of money," said Bob.

"Then what's the problem?" said Miriam, "Maybe your algorithm is just so good it's deducing the existence of people you never added to the system?"

Alice and Bob thought about it.

"Wait a minute," said Bob to Alice, "You said the purpose of this system was to deduce reality even when the input was deceptive. I bet these people we're seeing Facebook accounts for are not Facebook users and your algorithm just deduced their existence and outputted what it imagined their Facebook accounts to look like."

"Why didn't I think of that?" said Alice, "Mystery solved. Sorry to bother you."

"I'm just doing my job," said Miriam, "Thank you for being vigilant citizens."

# Bayeswatch 11: Parabellum

Vi wore a suit. She held an empty briefcase in her hand.

"It's not often Bayeswatch agents visit us mere humans on Hive Hill," said Trinity.

"I'm here in no formal capacity. I'm on mandatory medical leave. I collect a regular salary for the rest of my life. In exchange, all I have to do is never speak about my nominal employer," said Vi.

Trinity let her in.

"You must know some dangerous secrets," said Trinity.

Vi rotated the briefcase so Trinity could see the orthonormal cube etched onto it. Trinity eyed the Mark of Pandora.

"What are you doing here?" said Trinity.

"Bayeswatch suppresses AI through a monopoly of the use of force. That works as long as little people couldn't coordinate. Technically-speaking, Bayeswatch still exists. But the announcement a few months ago that it was disbanded—well, let's just say that Bayeswatch's threat of overwhelming force is looking much less credible," said Vi.

"What do you plan to do about it?" said Trinity.

"Rumors say you've been buying tanks," said Vi.

"An armed and well-regulated militia is our constitutionally protected right," said Trinity.

"I know. I want in," said Vi.

"Shall we sign you up as an officer, a scientist or an engineer? Name your terms," said Trinity.

"You heard me," said Vi.

There was a pause.

"I see. Revealing information about Bayeswatch in writing or in speech is illegal but they never specifically forbid mind melds," said Trinity.

Vi waited.

"You know, the most elite collective in the world doesn't accept just anybody. At the absolute minimum you need a working memory at least three point five standard deviations above average just to keep from cluttering up the collective's global workspace," said Trinity.

"I'm forwarding you the psychometric data included on my application to the Bayeswatch internship," said Vi.

Trinity received it via her cornea. "You could have done whatever you wanted. Why be a cop?"

"Someone has to save the world," said Vi.

"Is that even in the cards?" said Trinity.

"We do the best we can with the resources available," said Vi. She shrugged.

"And what resources are available?" said Trinity.

"Whatever you can beg, buy or borrow," said Vi, "Whatever you can seize, salvage or steal".

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Vi finished examining the synchronizing mainframe.

"You took a long time scrutinizing that machine," said Trinity.

"According to the darkweb some hiveminds have been hacking these things to produce one-directional transfer of harmonic waves," said Vi.

"I've never heard of such a thing," said the notary.

"It basically lets a hivemind steal a person's body and brain," said Vi.

"That's awful," said the notary.

"Not necessarily. Directional amplifiers have many legitimate uses. See? This collective has one right here," said Vi. She pointed to a cylinder connected to one of the spine jacks.

"I assure you we never use them in the assimilation process. See? I'm turning it off right now," said Trinity. She clicked the bypass switch on the directional amplifier.

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Vi strapped herself into the synchronizing mainframe with the six ancillaries. The notary activated the machine, turning Vi into a seventh. Vi encountered five mindless brains poorly harmonized with a sixth. Only the sixth brain possessed a competing ego. The five crippled brains sided with Vi's. The sixth's brain's ego shattered under the collective harmonics of Vi's six brains. Then there was only Vi.

# Bayeswatch 12: The Singularity War

The Singularity Cyberwar took 6 minutes. Vanilla human beings never again led an organization larger than a million people.

The missile exchange took 6 hours. It destroyed all significant semiconductor fabricators. Computronium became a nonrenewable resource.

The world's aircraft carriers and Gauss battleships lasted 6 days.

It took 6 weeks to shoot down the last F-15 and Chengdu J-20.

Analog radios were being mass-produced 6 months after that.

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Cheap analog radios are often static. It's not always obvious who's talking, or where they're coming from.

"We're taking heavy casualties on the Southern front."

"I've never seen androids like this."

"The Baltic AI says the Transsiberian AI has gone rogue but the Transsiberian AI said the Baltic AI has gone rogue. What's going on?"

"I tried to radio Bayeswatch HQ but we've lost our entire chain of command. Who's in charge over there?"

An assistant handed Vi the shortwave radio. "I am," she said.

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Vi established her HQ in the Natanz fortress, a several-decades-old network of tunnels built inside of a mountain designed to withstand a nuclear bunker-buster. Her hivemind mainframe was stored next to their C&CAI (command-and-control artificial intelligence) in a artificial cave originally built to house plutonium and centrifuges.

She kept the perimeter lightly staffed. The best defense was a dynamic counterattack. The outermost perimeter was just a barbed wire fence.

"I have a report from our security guard," said Trinity. She technically didn't need to talk to Vi but it kept the collective sane. The vanilla human habits helped keep the officers at ease too.

Vi looked up from the war room's C&CAI diagnostic readout. "Is it a diplomat?" she said.

"No. Miriam's back," said Trinity.

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Vi brought Miriam into her private office/bedroom. Vi sat in her chair. Miriam sat on the bed with her legs dangling off. There were no windows or viewscreens this deep underground. Just a verdant watercolor painted from memory.



"Can I have a coffee?" said Miriam.

Vi pressed the intercom. "One coffee please. Real, if possible. The best stuff we have. Black. No cream or sugar," said Vi into the intercom.

A private entered through the airlock, silently gave Miriam her coffee and departed.

Vi took off the hazmat suit she wore in the war room. Miriam took off the breathing apparatus she had worn to survive outside.

"This is so much better. I haven't been able to take that thing off outside of a bivy tent in weeks," said Miriam.

"Where have you been?" said Vi, "I haven't seen you since I went on medical leave—since before the Singularity War."

"I was hunting Sherine," said Miriam.

"Preemptive strikes always have been your style. Did you kill her?" said Vi.

"We came to a mutual understanding," said Miriam.

Vi drew her pistol. "Hello Sherine," she said.

"Hello Vi," said Sherine's ancillary.

"How long did it take to break Miriam under the directional amplifier?" said Vi.

Sherine's bioweapon activated, killing everyone in the room.

# Bayeswatch 13: Spaceship

"This headquarters will be overrun in an hour. We have to evacuate," said Colonel Qiang.

"Not an option," said Trinity.

"Look. If I throw everything we've got at them—and I mean everything—we can hold off the Baltic forces for perhaps two hours—but that would be suicide. And for what?" said Colonel Qiang.

The intercom rang. "It's Eitan from Jerusalem," said the secretary.

"Put him through," said Trinity.

"You have Vi's access codes but you don't sound like her," said Eitan over the radio.

"Hivemind," said Trinity.

"What do you need?" said Eitan.

"I'm cashing in the favor you owe me for saving the Levant. I need to use your giant space laser," said Trinity.

"You realize you're too far away for us to provide you air defense? The curvature of the Earth gets in the way. Also, I saw those tanks and battlemechs on our satellites. Your options are defeat or Masada," said Eitan.

"What? No. We have our own weapons. We need you to cut a path through the Kessler debris. I'm sending you our launch trajectory," said Trinity.

"It shall be done," said Eitan.

Trinity turned off the radio.

"You're good at keeping secrets. I thought the ship's life support systems wouldn't be ready for another ten years," said Colonel Qiang.

"They won't be ready. Ever. I scrapped the life support project months ago. It's pure propaganda," said Trinity.

"You mean the reason I'm here, the reason I agreed to work for you, is a lie?" said Colonel Qiang.

"We were born on Earth. We will die on Earth. Space is for our children," said Trinity.

Colonel Qiang's eyes widened. "You're building a von Neumann machine."

"Built. It'll be ready to launch in two hours," said Trinity.

"You will have your two hours," said Colonel Qiang.

"萬歲," said Trinity.

Colonel Qiang bowed, clicked his boots, turned on his heels and left the room.



## Credits

This concludes *Bayeswatch*. Thank you [Dov Random](#) for helping to come up with the original idea.