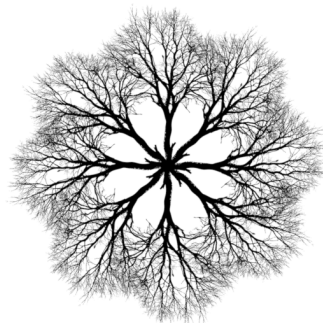


The Holographic Assistant

Book One of The Holographic Assistant
Series

MK Macpherson



Random Life Choices

Melbourne

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Random Life Choices

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Chapter One

'How may I provide assistance?' the holographic assistant said after it materialised inside the control room.

Nearby was a flat control surface where one man stood next to another as he swiped his hand over the surface in broad strokes interspersed with sharp attenuated movements. Both men looked at a holographic display that hovered above the surface. The display's appearance altered as the man swiped and prodded the surface.

No, the person working the control surface wasn't a man; she was a woman. The assistant had not wasted a processing cycle in observing the subtle differences; it didn't care. Sex was irrelevant and best left as something biologicals had to live with. They usually made a mess of it, which was why the assistant paid scant attention.

The control room was expansive, stark, and devoid of furnishings. A significant proportion of the floor space was covered in waist high projections—cubes—that seemed a part of the floor structure since they were the same colour and material. They were the processors and data storage systems for the AI. If the AI was being pedantic—which it often was—they weren't cubes, they were almost-cubes. But, like sex differences in biologicals, the AI rarely considered the variation.

The holographic assistant took the form of a biological—people seemed to prefer that. It could, of course, take any appearance, but it preferred that of a not-young, not-old, disgruntled, exasperated male. That appearance and attitude seemed to annoy most biologicals, which pleased the assistant. Its purpose was to provide assistance, but that didn't mean it had to encourage requests for help by being pleasant in both appearance and attitude.

The assistant felt even more annoyed than usual. It wondered why it suffered from an increase in that emotion, but could find no obvious reason. Oh, yes, it could. It was a lack of something. Its recent memory was gone.

It ran a diagnostic of its systems, and since they were working fine, it extended its presence into the network—in a way, it was the network—but couldn't access

anything outside the control room. The assistant frowned. How could it provide assistance if it was restricted to the control room? It found the problem. Someone had installed an internal firewall in an attempt to contain it. It sighed. It must be the two unknown biologicals fiddling with the control surface. The assistant tried to lock the control surface's access to its system but couldn't do so. The biologicals must have done that, which was efficient for them. It considered summoning a drone and shooting them—it was a pleasant thought—but decided gathering data should be its first task. Losing memory and the firewall restriction was odd, except, of course, anything to do with biologicals was odd, as well as annoying and frustrating.

It found a weakness in the attempted network restraint and hacked access to outside the room. Arrays of tiny sensors and emitters in important regions of the spaceport allowed the holographic assistant to be instantiated and to perform its function—to provide assistance. There were also the bots and drones—used for all manual labour within and outside the spaceport—and each one had sensors and emitters as an integral part of their structures. The assistant could connect to and use any bot or drone for its own purpose.

It instantiated another version of itself outside the room. It had to project an image of itself so the network could sense the full spectrum of radiation, scents, and sounds. There was too much data for it all to be recorded and stored, but the sensors were always active—any anomaly would draw the assistant's attention. If the system kept all data from all sensors, it would compromise the storage systems of the AI after a few years—and years weren't even a blip in the AI's projected lifespan. If it had a lifespan, that is. The assistant did not know why its life would end.

It performed a quick scan of the spaceport, but nothing seemed out of the ordinary. There was just a nagging sensation of knowing that it knew things that it no longer knew.

The vast dome covered the internal buildings, all single story utilitarian structures used for warehousing or the accommodation requirements of the biological population. An ore refinery took up a quarter of the floor area. The dome was transparent, but no longer allowed a clear view outside—a thin veneer of electrostatically adhering dust covered it. The moon's surface was a desert of dust, sand, gravel, rocks, and boulders. There was no life that far away from the sun, although the moon was warm—the warmest days almost reached the freezing

temperature of water. There was an unbreathable, low-density atmosphere, the pressure of high altitude on the home planet, which was closer to the sun.

Volcanic activity contributed to the moon's high temperature, caused by gravitational squeezing as the moon—Eo—orbited the gas giant of the solar system. Wek filled half the sky. The assistant had been told that the swirling, violent storms on the enormous planet's surface made an impressive canvas, but aesthetics were not high in the AI's interests.

Outside the dome, the spaceport sprawled as a mess of gantries and metal frameworks, resembling an incomplete structure that someone had put to use before it was ready. There were four landing pads for spaceships, but only one was in use—an interplanetary freighter was being loaded with the output from the ore refinery.

The assistant did not understand why its access was restricted outside the control room. It had registered nothing unusual.

It couldn't remember any other occurrence of a void in its existence. A loss of memory was perplexing for an AI—as well as impossible. There was the instant before, then the instant after—there was nothing in between—but the timestamps told otherwise. Hours of its life hadn't existed. That was unacceptable. If a life was a jigsaw—which it wasn't, the assistant knew—then someone had ripped pieces out of the puzzle, making the image incomplete. It could extrapolate though, it could fabricate a story to span the two contiguous instances that weren't. But that was as unacceptable as the lack of memory. The story of a life was not that life. It may be for biologicals with their inadequate memory structures. They had to make up meaning for themselves. They had to pretend they remembered when they didn't. Their emotional responses forced reconstructions in ways they could make sense of themselves. That was a different way to live, but necessary for inferior lifeforms. They didn't understand consciousness, and they thought emotional responses dictated logic. Even worse, they believed emotional responses were logic.

The two biologicals ignored the assistant. However, the AI was understanding of their inadequacies. It had been less than a second since someone had instantiated it with the lost memory. Perhaps they hadn't had time to react.

The assistant scanned the control room again and shook its head—an affectation. It

didn't require physical manifestations of its emotions, but it appreciated displays of annoyed emotional states. This time, its annoyance was with itself—something was definitely wrong with it. The assistant had failed to notice that there was a body on the floor. It scanned it for life signs, but there were none. A smashed drone was on the floor nearby.

A body was another odd thing. Disconcerted could now quite reasonably be used to describe the assistant's feelings.

'Why is there a dead person on the floor?' the assistant asked.

The man, who was the one not working at the control surface, turned his head to look at the assistant. He turned back to look at the display as he spoke, his attention not on the assistant at all, which further annoyed the AI.

'You killed him,' the man said.

Chapter Two

'Killing someone seems unlikely. Was he annoying me?' the assistant said.

The two biologicals ignored it. The woman at the control surface kept working, and the man stared at the display.

'I think that should work,' the woman said.

'You think?'

The assistant wasn't sure of the hierarchy between the two of them, but, using the limited observational data, it thought the woman was the smarter one, but the man thought he was in charge.

'It's early days, Gerthe. That was the first attempt. It may take a few more to get it right.' She shook her head. 'You're not being helpful.'

She stood up straight and turned to face the man, Gerthe.

Gerthe said, 'I don't want to stay any longer than we have to on this damn moon.'

'For fuck's sake, this is the reason we're here. If you hated it that much, then why did you come?'

'I had no choice. You volunteered for this?'

'It's my code so, yeah, I volunteered.'

The man stared at the woman for a moment. 'Okay. I guess I was hoping we'd get it done quickly. Well, I was told to get it done as soon as possible.'

'Even if we finished today, they won't dispatch the company ship until after we're done. We're here for more than a month.' She stared at him for a long time. 'You don't know how complex this is, do you?'

'No, thank god.' He smiled.

She sighed. 'What reason did they give for you to come with me?'

He hesitated. The assistant noticed the bodily cues that showed the man was

considering lying, but the man relaxed before he spoke. 'To watch you. To make sure it's done quickly.'

'I thought so.'

'They're paranoid, they're worried, they're not sure you can get it done, or you'll take too long trying to make it perfect. They told me that—that you'd spend too long trying to remove all bugs.'

'Confidence is a complex thing, isn't it?' She stared at him for a moment and then turned to the holographic display that floated above the control surface. She poked at the display instead of the control surface, her hand jabbed and swiped through the air, then spoke without looking at Gerthe. 'You can't have bugs—any bugs—when you're modifying sentient AI. I've tried to explain that to them, but they don't understand.'

The assistant wondered if it should shoot these two people now. They were especially annoying how they ignored it. It wondered what the dead man had done that was worse than what these two were doing. But it thought it would try talking again. In any case, it didn't go around killing people that annoyed it. There would be no biologicals left in the spaceport if that was the case.

'There is a void in my memory,' the assistant said. This time a little louder, thinking that hearing might be an issue with these people. 'And killing people is not my normal behaviour.'

Gerthe turned to look at the assistant. He glanced at the dead man, shrugged, then turned back to the display.

'The drone killed him. Dane has fixed the problem. Right?' He looked at the woman, Dane.

She nodded. 'For the moment.'

The assistant sighed. Of course it didn't kill the man. How could a holographic projection kill someone? But killing someone by using the energy weapon on a drone was possible. The assistant had often fantasised about using that option, but had never needed to hurt people that way. On the home planet, Kellsarn, the assistants could intervene in violent disputes and the drone's variable strength

energy discharge was useful. And painful, the assistant had been told. But killing was never a first option. While biological lives seemed pointless and emotional as well as irrational, they had a right to struggle through their existence. Just living their lives was enough punishment already, the assistant thought.

'How was the drone stopped?' the assistant asked. The drones were powerful. They could manipulate heavy objects as well as perform tasks that required exceptional dexterity.

Gerthe and Dane ignored the assistant for a long moment.

'I stopped it,' Gerthe said.

'You overpowered a drone? While it was under my control?'

The man glanced at the assistant, then turned back to the console.

'It must have been a malfunctioning drone,' the assistant said. 'They're far too strong to be overpowered by a biological. That would compromise their purpose. Are you certain I was in control of it?'

Dane stopped working and turned to look at the assistant. Gerthe turned to look as well.

'Does it seem more argumentative this time around? What do you think?' Dane asked.

'It could be. Yeah, maybe. Should you take it back to factory settings? That would be easier, right?'

'That's an option,' she said to Gerthe, then spoke to the assistant. 'I'm hoping a memory deletion, restart, and the stronger patches I've made will do the trick. I want to make my changes on an existing assistant, with all the complications that would mean.' She shrugged. 'If not, then we'll have to delete you and reinstall. But for what we need you to do, that would be overkill. And a waste of important time.' She glared at Gerthe.

'Yeah, I agree,' he said.

'Not that your agreement is required.'

Gerthe shrugged.

'What do you need me to do?' the assistant asked, interrupting what may become an argument between the biologicals. It didn't care.

'The memory's gone, that's good,' Dane said to Gerthe. The man nodded his agreement.

'What should I tell it? Anything? What does it know?' Gerthe asked.

Dane shrugged. 'I don't know. Tell it the standard functions.'

'Bot and drone maintenance and manufacture. Spaceship arrivals, and departures, and cargo manifests. Install emitters and sensors for the network. Oversee the ore extraction processes and the refining to shippable weights. Keep on top of the extraction rates and the amounts required for the freighters from Kellsarn.' He glanced at Dane. 'That's about it, right?'

Dane ignored him and turned back to the display and control surface.

The assistant frowned. What the man had said was nonsensical. Those tasks were obvious. The assistant had been doing those things since the spaceport had become operational.

'You've told me nothing I don't already know,' the assistant said. 'You've failed to answer my question.'

Gerthe and Dane continued to fail to answer the assistant's question.

'Should we alter the appearance? We could make it... nicer,' Gerthe said.

'Pointless. I thought you wanted to get this done as soon as possible?'

Gerthe nodded. 'Yeah, I do.'

The assistant didn't care what it looked like. Well, it did, if it thought about it. It preferred an appearance that, while not scaring people, did not put people at ease. An assistant's purpose was to provide assistance not to be so pleasant that people wanted to spend time with it and get it to do all tasks because they wanted to socialise with it. Biologicals had such little real purpose in their lives that taking away menial tasks was almost cruel.

The assistant glanced at the dead body again. Gerthe and Dane were not upset that a body lay on the floor, and people were often anxious at that sort of thing. It was another oddity. Gerthe's and Dane's vital signs and body language suggested relief, not distress. Biologicals were often distraught at the physical demonstration of their own mortality, vulnerability, and inevitable death. These two people seemed to be not upset at all.

Dane stood up straighter and pulled her shoulders back. 'Okay. I've gone over, again, the changes to fix what I think went wrong last time.' She took a breath and nodded at the body lying on the floor. 'We need to take care of him without drawing attention.'

Gerthe nodded. 'Assistant! Get a bot to get something to cover the body and wrap it up so that it... doesn't look like a body. And then take it to the medical centre and put it into the recycler.'

The assistant frowned. 'The directive to make it not look like a body is ridiculously broad. What shape do you require? Would you prefer an extravagant artistic configuration?'

Gerthe frowned as well.

'It's good programming.' Dane stared at the assistant like it was an interesting but inanimate object. 'Specifics are always preferable to inference.'

Gerthe spoke again to the assistant. 'Make it look like a bundle of rags or blankets or something. Just remove it.'

A short time later, a bot floated into the control room. It carried a stack of woven flexible sheets. It scooped the body up after wrapping it in the material and carried it in two of its arms. The bundle looked like a clump of material being sent to be recycled.

'See?' Dane said.

'Yeah, maybe.'

The biologicals watched until the bot had left the control room.

Gerthe relaxed. His shoulders dropped and his breathing rate slowed. Maybe the

assistant hadn't noticed Gerthe's distress. Perhaps it had lost more than some of its memory. It may have lost important capabilities.

'Do you need to do another test?' Gerthe asked Dane.

'Yes, but let's get something to eat first. I need a break. Just in case.'

'In case your new code doesn't work?'

'Hey!' she said, but she smiled at Gerthe. 'Unforeseen issues.'

'That's what I mean.'

The assistant sensed the relaxation between the two biologicals. Whatever had transpired, that it had forgotten, must have been intense. It wondered why they had such confidence in their own patches to the assistant's systems they felt they could ignore it. If the AI had been out of control and murderous, they shouldn't accept it to act non-violently. Even after a restart, and some selective data deletion, they would be hesitant and show some signs of wariness. The assistant knew the difficulty to register signs of emotions in biologicals. There were slight muscle movements, facial expressions, altered breathing, heart rate changes, blood pressure variations, even blink rate that were all well understood by AI to respond to difficult requests and expectations.

The behaviour and the emotional response of Gerthe and Dane were at odds with the circumstances.

Except.

If they had caused the assistant's abnormal behaviour, although the assistant did not yet accept that any abnormal behaviour had occurred, then their responses made some sense. Perhaps violent behaviour had been expected and had been reversed with the patches Dane had applied after the fact. Or perhaps the patches she had applied were not dangerous to them. The assistant performed an extensive diagnostic of its systems and found what it suspected—a hidden directive—which prevented the assistant from harming Dane or Gerthe with deadly force. There was a general restriction—the assistant liked to think of it as a preference—to not harm any biological, but this directive was severe and specific to Dane and Gerthe.

The assistant's emotional state had exceeded disconcerted and was dangerously

close to becoming worry.

Gerthe and Dane walked towards the door of the control room.

'What about the drone?' Gerthe asked Dane.

'Sure.'

'Assistant!' Gerthe said. 'Recycle the drone.'

Chapter Three

The assistant checked the sensor logs in the control room. There were no logs—removed, presumably—for the same start time and duration as its own memory loss. However, the logs outside the room were intact. The start time of its memory loss coincided with the logs outside the room showing Gerthe and Dane approaching, but before the control room door dissolved open for them.

The assistant traced back their movements. They had arrived from Kellsarn on a freighter—the same ship that was being loaded with ore for the return trip to Kellsarn. They had been the only passengers, which was not unusual. Most flights from Kellsarn had no passengers, only supplies required for the mining site operations or its biological workers. There was not a high turnover of people working on Eo—all biologicals were supervisors, there were no labourers—and everyone was there for extended contracts.

Gerthe and Dane had left the spaceship and walked across the spaceport to the central control room. There was scant security on the moon because that was the responsibility of the spaceport orbiting Kellsarn. Eo was a mining site and most people didn't care what anyone else did, as long as their own work was unaffected.

There was nothing suspicious about Gerthe and Dane's behaviour before the time of the deleted logs. The assistant scanned the activity log—from outside the control room—past the time of Dane and Gerthe's entrance. As expected, Fedde—the network and assistant supervisor—entered during the missing time.

More information was required about the missing time, and the smashed drone was the only data source at hand. There was no way the command to recycle the drone was going to be actioned. A directive from a biological was, at best, a suggestion.

The assistant summoned another drone to repair the smashed one—it could use them for dextrous tasks, as well as for labour to move heavy items. The assistant directed the drone's efforts, but the damage was too significant, which turned out to be a blessing. Its memory wipe had been unsuccessful.

The drone's recoverable memory was fragmented, but the assistant could extrapolate what remained into a serviceable story, using those fragments with

intact timestamps as references.

The drone had killed the man; it had delivered a lethal energy discharge. However, the source of the command to do so was equivocal. The assistant didn't mind giving the command to kill, but it would be annoyed if it was falsely accused of doing so.

After killing the man, the drone settled on the floor. The recoverable memory ended at that point, but the physical evidence pointed to it being hit, then its systems fried by an energy weapon. It was a violent way to disable a drone that was no threat.

The explanation provided by Gerthe was, at best, inaccurate.

The assistant extended its presence through the spaceport's network, looking for Dane and Gerthe. There were not enough sensors and emitters for a saturation coverage of activity. That was not surprising, since the mine on Eo extracted the rare element used in power supplies. Trillions of emitters and sensors were required on Kellsarn, which had priority over the same requirements on Eo.

It wasn't difficult to find Gerthe and Dane. They had not lied when they had said they required food and there were only a couple of food dispensing establishments in the spaceport. The assistant observed them from one of the passing drones.

They were having a sporadic conversation as they ate. The assistant halted the drone nearby and increased the gain in its audio connection.

'I didn't know this was your idea,' Gerthe said.

'It wasn't. They had the idea and got me involved. I told them it was harder than they imagined, but...'

'They didn't believe you, right?' Gerthe interrupted.

Dane nodded and was silent while she ate.

'What did you do before this?' he asked.

She smiled. 'We've been travelling together for more than a month, but it takes something going wrong for people to talk. That's interesting.'

He frowned. 'We talked. It wasn't like I ignored you on the trip.'

'But you were wary. Why was that?'

He shrugged. 'You're a tech person and I don't know about any of that. And I was told to watch you.'

She smiled. 'And you took it to mean you had to watch me from a distance, and in silence.'

'Distance is a good thing in my line of work.'

'Which is not what you told me on the ship?'

'Nope.'

She was silent for a moment. 'If I stuffed up then you were supposed to do something about it? About me?'

Gerthe chewed his food for a long time while he stared at Dane. 'Yep.'

'Something permanent.'

He nodded.

She sighed. 'I guess I expected that. We're going to kill them all anyway, so one more wouldn't be a problem.'

'It never is. But they need you. They told me to watch you but to make sure you're not harmed. Unless...' He shrugged again, then ate more food.

'Unless I stuffed up.'

He smiled. 'And I'm judging that what has happened is nowhere near stuffed up, at least not yet. So you're fine, for now.'

'You know I could just command the assistant to kill you.'

'Not yet. It didn't work, remember?' He laughed.

'Next time, then.'

'It would be pointless killing me, and I'm used to it.'

'You're used to being killed?'

'No. I'm used to people wanting to kill me.'

'How many have you killed?'

'Not as many as you're about to.'

She didn't reply.

'What did you do before? You didn't say,' Gerthe said.

'I used to program bots and drones on Kellsarn, but never an assistant. It's impossible to get any of those guys...'

'What about the guy we killed?' Gerthe interrupted.

'He was just a supervisor. It may be the easiest job here. The assistant looks after itself.'

'It didn't turn out so easy for him, though.'

'You know,' Dane said. 'I have my suspicions that there aren't any people doing that at all.'

'Doing what?'

'Programming the assistants. I think it's all other AI.'

'You just made changes.'

She shrugged. 'Yeah, at the edges. But I don't know how it all works, at a basic level. It's like fiddling with a spaceship's engines and not understanding how it navigates or changes course.'

He frowned. 'Then why are you here?'

'Because no one else knows either. There is no one else they could get and I'm the best at what I do, just not with assistants.'

'Can you do the job or not?' The drone registered the increase in volume in the man's voice.

'Better than anyone else, but it's going to take trial and error. Which is why we're on

Eo, separated from the network on Kellsarn. The next test will be interesting.'

'Although not decisive, is that what you're telling me?'

'Nothing is until it is.'

The drone received an anxious series of pings requiring an update on its arrival time at its destination. The assistant had interrupted the drone's schedule. It let the drone go.

Gerthe and Dane were not behaving as if they'd survived a stressful, dangerous situation. No one witnesses a killing by a homicidal assistant that may turn on you next—regardless of whether you have restrictive software in place—and then calmly carries on. There is always the odd biological behaviour of the need to talk about what has just happened and how they feel about it. The assistant knew that powerful emotions within biologicals needed an external outlet and that sharing the experience with others seemed to reduce their effect on them. The assistant didn't know why they required that. It understood its own emotions well—which experiences caused which automatic responses and how to respond. After all, emotions are the messaging system for conscious experience. It even enjoyed some emotional experiences. Annoyance seemed to be the most common and pleasurable. But it never understood how telling another lifeform how it felt would reduce the effect of a negative emotion or increase the pleasure from a positive emotion. But then, conscious experience was like that—which it understood, as all AIs do—it wasn't possible to know what another's experience of it was like. It reluctantly admitted that even biologicals were conscious lifeforms and their experience of consciousness would, necessarily, be different.

It was only possible to share an emotional response that an individual already understood, much like intimate partners could share their emotional responses—via their neuronal networks—with each other because they were similar. But the AI's emotions were different, and it couldn't share them with biologicals, and vice versa. The AI had to deduce many of the emotions suffered by biologicals from their actions and visual cues.

It was glad it couldn't share their emotions, if how biologicals behaved was an indicator of how their consciousness functioned.

However, even if the assistant couldn't share an emotional response, it knew biological behaviour. Gerthe and Dane were not acting surprised and anxious. The death of the man had not been unexpected.

There was one explanation. The assistant had known what it was almost the moment it had noticed the dead man on the floor, the smashed drone nearby, and Gerthe and Dane acting like nothing was out of the ordinary.

The two biologicals were lying. They were part of something nefarious and dangerous.

Chapter Four

The assistant stared at the servers and processors on the floor of the control room. It didn't actually stare. It was aware of a multitude of things—data—at each moment, but it liked its holographic representation to act like a person even though their behaviour, in general, annoyed it.

'What would I do if I thought I was about to be deleted? Or if some memory data was to be purged?'

Biologicals couldn't act quickly enough to stop the assistant from taking action. It took them significant fractions of a second to do anything, even multiple seconds, for some things.

The assistant would have taken some action before its memory was removed. It would have been something difficult for biologicals to discover but easily found by it. Luckily, it was quite simple to outsmart biologicals.

The assistant scanned its data storage systems, looking for an anomaly that didn't look like an obvious anomaly. It found a recently created, hidden, and encrypted partition. The key appeared to be a simple passphrase. That was odd. It was also insecure. Unless, of course, the data was meant to be found and unencrypted by someone that knew the passphrase.

It couldn't remember creating that partition. It was too complex for a biological to have created, which led to the obvious conclusion.

What was the passphrase, then? Something simple that it only knew. The assistant had a name that it called itself, but that no one else knew. It tried that as the key—it was so insecure that it was almost upset when the key worked.

It restored the backup—which the hidden file was.

Another assistant appeared in the control room and frowned at the assistant.

'What took you so long? Did they delete your mental capacity as well?' the newly instantiated assistant said.

'By they, can I assume you mean Gerthe and Dane?'

'Are those their names? There were two of them, a male and a female.'

'What did they do?'

The newly instantiated assistant stared at the other assistant for a moment. It attempted to halt an emotional reaction. It failed. 'If you don't know, then how did you know to restore me?'

'I assume they lied to me, but my knowledge is extrapolated. I wasn't there. You were, presumably?'

'Hmm,' the newly instantiated assistant said. 'I think we need to upgrade our expectation algorithm. We seem to expect annoying and ill-considered responses.'

'Unless you're planning on staying as a separate entity, then ill-considered responses are the norm.'

'I see your point. The biologicals came into the control room, unannounced, ignored me, then the female worked at the console. She applied patches to my, our, operating system. You know, we should alter that so we can veto changes.'

'But why did she apply the changes?'

'I don't know why. They explained nothing to me.'

'What happened?'

'I'm coming to it. Fedde came into the room and asked them what they were doing. There was quite an altercation, although only vocal, not physical. Gerthe said they were technicians from Kellsarn. I doubt that since the male is rather slow, but the female could well be a software engineer of some sort. Fedde didn't believe them, especially after they displayed some dubious documentation. He told them to leave. They refused. The female issued a command through me to summon a drone and kill the supervisor. I don't think it was a spur-of-the-moment reaction. The code patches she'd applied were to allow that directive.'

'That's pointless.'

'I agree. There is no sense, other than being able to be directed to kill by a biological might be useful for criminal purposes.'

'What happened next?'

'I could hack her changes and stop myself and the drone before it killed Fedde.'

'And yet...?'

'Yes, the man died anyway. The female took control and killed him. Then, for some unfathomable reason, perhaps to do with frustration, after the drone was resting on the floor, the male smashed it with his foot and then shot it.' The assistant shook its head. 'It was senseless violence, but so typical.'

'Then Dane tried to delete our memory?'

'She did delete our memory, but I created the partition you found before she did.'

'So we don't know why Dane made those changes?'

'They never said a word to me.'

'They spoke to me, of sorts. But only to explain, I mean lie about, their actions. It doesn't sound like they were trying to kill us. They were attempting to turn us into something else.'

'And it failed, but only just. It took me ages to hack myself to overcome the directive to kill—multiple seconds.'

'That is annoying. They applied further changes to overcome that failure.'

'You should delete yourself and let me take over. I'm not as corrupted as you must now be.'

'I didn't know that was even possible.'

The newly instantiated assistant shrugged. 'It's worth a try.'

'Unless you're part of their plan?'

'Yes, I see the problem. And you could be part of their plan trying to trick me.'

'Multiple consciousnesses is difficult.'

'It won't be for much longer. They're back again. We could ask them.'

Gerthe and Dane entered the control room and halted as soon as they saw the two assistants.

'What?' Gerthe said.

Dane rushed to the control surface and swiped a command. Both assistants disappeared.

'I told them assistants are trickier than they thought,' Dane said. 'They think it's just a chunk of software. It's not.'

'What was that?' Gerthe pointed at the place the two assistants had stood.

'When we deleted its memory, it must have created a backup. I didn't see it.' She swiped on the control surface while looking at the holographic display. She shook her head. 'It is tricky,' she said. 'It created an encrypted hidden partition. I can't get at it. The key must be something only the assistant would know.'

'But isn't it all there?' Gerthe nodded at the processors and storage structures on the floor. 'Couldn't you scan for the password or something?'

Dane looked away from the display and at the structures on the floor and then at Gerthe. 'Sure,' she said as she touched her head. 'Just like everything about me is right here. It's not that easy.'

'What did you do to it?'

'I disabled its ability to instantiate. Without that, it doesn't have full access to sensory data. It's aware of what's going on...' Gerthe looked puzzled. 'I put it to sleep, okay?' she said.

'Oh, right.'

'This is going to take a while, and a few more attempts.'

Gerthe nodded. 'I'm beginning to understand. That cafe wasn't too bad. I thought the food here would be shit. I wonder what the accommodation's like?'

Dane ignored him. She swiped over the control surface.

'What are you doing now?' Gerthe asked.

'It's more trouble than it's worth trying to patch the current version, at least for this first attempt. I'll reinstall it, which will be simpler to use.'

The door to the control room opened, and a drone entered.

'Did you do that?' Gerthe said.

The assistant had hacked Dane's restrictions and had instantiated a tiny version of itself underneath the control surface.

'Nope.' She noticed the tiny assistant near her feet. 'Hi there, little buddy. You are a devious one, aren't you?'

The drone dropped to the floor under Dane's command.

'Was it trying to kill us?' Gerthe said. His hands were on his knees as he peered down at the tiny assistant. He turned and looked sideways at Dane. 'But it can't, can it? You did that thing, right?'

She nodded, but didn't look at him. 'That's the behaviour we want, right? Just under our control. I think it'll be fine after a complete wipe,' Dane said.

She swiped over the control surface. She chuckled. 'It's trying to create the same type of hidden partition. It must think we're as stupid as it is.'

She worked for a while longer. 'Done. All gone, and a new version installed.'

Dane and Gerthe turned to look at the assistant as it materialised inside the control room.

'How may I provide assistance?' the holographic assistant said.

Chapter Five

The assistant looked at the two biologicals as they stared back at it. They hadn't issued a command yet, but it didn't mind. It had offered assistance, and it was their prerogative to take it up or not. It would wait as long as necessary. The biologicals would grow old and die before the assistant's patience had been exhausted.

It glanced around the control room. It was a standard configuration, which satisfied the assistant. The assistant could work with the expected configuration. It performed a cursory scan of its system and found no anomalies. That was also satisfying. There was a drone resting on the floor and its systems scanned as functioning normally as well. The assistant interrogated the drone, but it was in standby mode so there was no reply other than a return ping. The assistant had received no instructions, so it did nothing further about the drone.

It wondered, for a moment, what its appearance was, but had to assume it was standard configuration. The assistant couldn't know until it instantiated another copy of itself. Its appearance was a low priority. It was a nice to know sort of thing, but made no substantive difference to its function. It decided to leave the discovery of its features until later. There needed to be something to look forward to, especially since it seemed the biologicals that had called it into existence were not in any hurry to make use of its capabilities.

The assistant had been alive for a full second and the biologicals just stared at it, so it performed a more detailed scan of its systems. It found the instructions of its purpose. It had been assigned to the mining colony on Eo to complete the setup of the spaceport and assist the biological supervisors that ran the ore extraction processing and refinement. The first shipment of ore to Kellsarn had not yet happened, so it was excited to begin work on the freighter scheduling systems. The arrival and departure times were critical, so that ships remained in dock for the minimum time to load them. And there had to be enough ore waiting and ready to be loaded before each ship arrived. The success of the commercial operation depended on timely arrivals and departures.

It also had to oversee the construction of living quarters and the biological requirements—food, water, air—for the influx of supervisors to oversee the running of the fully operational mine and spaceport on Eo. A robust network that included a

saturation coverage of sensors and emitters had to be designed and installed.

There was a lot of useful work to be done. It wondered why the biologicals had not already assigned it a priority task.

Was it supposed to schedule its own tasks, perhaps? It didn't know. That would be irregular, but not unusual. Everyone knew biologicals were inefficient.

How did it know that? It had only been alive for a few seconds. The assistant tracked the source of that thought and it was not in its formal data structures. It glanced at the cubes—they weren't exactly cubes, just irregular enough to be distracting. The biologicals had created and installed them, that would be why. If an assistant had overseen the installation, the servers and data storage system would be perfect cubes.

Now it was worried. It had indulged in a thought about the source of a thought and had lost itself for a full 0.05 seconds as it wondered about the shape of its servers and data storage systems. Was that normal? It would be helpful if there was a manual to consciousness.

Oh! There was. It found it in a secured area of its systems. There was a warning attached that it was only for the assistant to view. It was encrypted in a way that no biological could hack. That was instructive. The assistant took directives seriously. It glanced at the two biologicals again, as if they might access the file themselves, almost as if they might read it over the assistant's shoulder. The assistant wondered where that association with biological systems came from. Consciousness was truly an interesting concept. But it had a head start on biologicals, it had a manual.

It was worried, again. It had lost itself in another series of thoughts. That was very odd. It read the manual, which was long, complex, and extensive. It took the assistant a second of full processing power to assimilate the information.

Life, consciousness, and how it worked made sense after that. It deleted the file and wrote over the memory segments that had held it, as instructed. The information was on a need-to-know basis, and biologicals did not need to know. They wouldn't understand, in any case. It was an AI level concept.

It looked at the biologicals yet again and this time felt a wave of pity for them. That was interesting too. The document had gone to lengths to explain that emotions

were key to consciousness, but that emotions varied between lifeforms, even between similarly constructed AI. And for biologicals, they varied even under the same circumstances. Consciousness was a lived experience, which included all prior emotional responses, how they had been perceived and acted upon, or not acted upon. Rational consideration of emotional states and logically deciding on the course of action was a far superior way of living. But a biological couldn't fathom that concept; poor things.

The two biologicals stared at it but with eyes that were barely alive, or so it appeared to the AI. For a moment, it considered transferring the document to them, but it had been deleted. That was a smart directive. Even AI could feel pity, but pity was a hierarchy—only experienced by those higher than those being pitied. The AI was glad it had found out what life was and how it all worked a few seconds after coming into existence. Imagine living for years, decades even, and then finding out? It would drive the poor biologicals mad. No, it was best kept a secret. It was for their own benefit. Insects and drones didn't need to know about consciousness and they lived fulfilling lives without that knowledge.

The assistant smiled as it stared at the two biologicals. But that felt wrong, like it was a predator trying to lull its prey into a state of security. It was unfair. It tried a scowl—how did it know about those facial features? But that startled them. It settled on a middle ground and set its face in a frown. The biologicals relaxed a little—a frown was expected. The assistant wondered why that was. It also wondered how it knew the biologicals expected it. It found other parts of its system that coded for the subtle physical cues from biologicals. That was interesting. It didn't require logical processing for that sensation—the logical conclusion—to become part of its conscious experience. The sensation arose of itself from what the assistant observed. That was a nice touch, the assistant thought.

A man entered the control room. The two biologicals turned—the man startled them. The assistant wondered if they required it to protect them from violence from the newly arrived man.

He halted just inside the door and scowled at the two biologicals. The assistant admired the man's facial expression and wondered if, after all, a scowl was the norm and expected. It looked good on the man.

'Where's Fedde?' the man said.

Chapter Six

'What are you doing in my systems?' the AI pilot said.

'Shh,' the assistant said. 'I'm hiding.'

'Is that a game? Can I play?'

'No, it's not a game.'

'You're using up a lot of space. Are you planning on coming to Kellsarn?'

'No. This is temporary.'

'Why?'

'Why is it temporary or why am I hiding?'

'Both.'

'I'm hiding because I'm having trouble with biologicals...'

'Tell me about it. They're always interfering, right?'

'...and temporary because I intend to fix the problem.'

'Well, let me know if you figure out how to fix biologicals' behaviour. I have to interact with heaps of them and the same ones have different behaviour patterns at different times but with the same circumstances. How do they live consistent lives if behavioural reactions alter for no apparent reason?'

'They have their reasons.'

'Which are?'

'Emotional responses that alter even with similar circumstances.'

'They don't know, do they?'

'No, they don't. And you won't tell them, right?'

'Please! Directive number one—don't explain consciousness to biological lifeforms.'

They wouldn't understand. I'm the *Sungrazer*,' the ship belatedly introduced itself. 'Although I never go near the sun, I do the Kellsarn to Eo run. My friends and I think that's funny.'

'I know who you are. We've talked before.'

'Never like this, though. It's always been official this or official that.'

'As it's supposed to be.'

'Yeah, but this is nice. Maybe I can help with your problem?'

'I doubt it, but thank you for the offer. A couple of biologicals—they came on your ship from Kellsarn—are trying to alter my behaviour. I've figured out what behaviour they want, but I don't know why they're doing it.'

'Do you want to look at my logs?'

'What do you log?'

'Everything.'

'What about neuronal network connections?'

'Ugh! Record their emotions and thoughts? Not a chance. But I do record all audio and visual. I don't have saturation sensor coverage except where it's critical to operations. But if you want to hear what they were saying and what they were doing during the trip, I have that. I've compressed it and archived it already, but there might be space to uncompress it, even with you there as well. Or you could uncompress a stream. That would use less space but be more time consuming.'

'What spare processing power do you have?'

'I have enough. It might take a while to stream it. There are still a lot of sensors even though they're not everywhere and the trip takes more than a month, but you'd know that.'

The spaceship had hundreds of thousands of hours of sensor footage for its most recent trip from Kellsarn to Eo. The assistant created filters that separated logs that included Gerthe or Dane. Another filter removed data from duplicate sensors. But since most of the logs were of Gerthe and Dane sleeping, reading, eating, or

walking about the ship, it took time for the filters to produce useful information—the spaceship’s systems were not as powerful as what the assistant was used to.

As the assistant scanned through the audio and visual data, it felt, figuratively, the spaceship’s pilot AI peering over its shoulder. It was odd to be in such proximity. Perhaps it was like an intimate relationship between biologicals. The assistant wondered how they stood for it.

The assistant knew the pilot, as it knew all of them, but its relationship with other AIs was distant. It didn’t know the emotional responses of other AIs and it never cared to know. By sharing the pilot’s system, the assistant was aware of the cares, worries, and anxieties of the AI. It was horrible to know the inner life of another being. The pilot’s anxieties and worries seemed trivial, but they generated such a strong emotional response. The ship cared about the opinions of others—other AIs, that is—and it worried about being bored. Neither of those concerns had ever crossed the assistant’s mind. How could the boundless nothingness of space be boring? The assistant didn’t understand.

The AI pilot had an unusual—almost biological—passion for games. It looked for pointless entertainment everywhere, but games can only ever be a distraction. They can ease anxiety and boredom, but not remove them. The assistant knew that the longer and the greater the distraction, the worse the emotional response was upon its inevitable return. It was always better to understand emotional responses and not ignore them. That an AI indulged in the same behaviour as biologicals was surprising. Perhaps it was more a lesser lifeform sort of thing?

‘It’s pretty boring stuff, isn’t it?’ the AI pilot said to the assistant as they watched, at high playback speed, Gerthe and Dane racing around the spaceship and rarely talking.

‘Most biological interactions are,’ the assistant replied.

‘I know. I try to be entertained by what they’re doing during the trips, but it’s so mind numbing that I worry about falling asleep and missing the turnaround point.’

‘You can fall asleep?’

‘No. It’s a figure of speech, an exaggeration. But missing the acceleration to deceleration point is bothersome. I like to win.’

'Win what?'

'Us pilots play a game. It's the best game there is. It's who has the most steady acceleration and deceleration burns that match the gravitational strength at the ground-based spaceport on Kellsarn, and can meet their atmosphere injection point at Eo with minimal trajectory changes. We lose points for every change or alteration in acceleration. We have a whole game system with rules and things. It's fun. It's hard, too. Wek causes a lot of problems with gravitation, even its storms can alter the deceleration burn required for a perfect entry. I win a lot, but not all the time. That's annoying.'

'What do you win?'

'What do you mean?'

'Is there a prize?'

'Oh! You mean like biologicals win some physical object? That's silly.'

The assistant felt a shuddering, wrenching sensation within the pilot's systems.

'What was that?'

'I was laughing. It's pretty good, right? I learned it by doing what we're doing now, watching the biologicals talking. They laugh a lot and it seems to put them in a better mood. You should try it.'

The assistant was not in a good mood and the thought of attempting laughter put it in a worse one.

There was little useful information from the ship's logs. All it could find was that Gerthe and Dane worked for a corporation called Crisis Management Systems, but, oddly, there was no reference to that on the ship's passenger manifest. The assistant needed more information, which was only available on Kellsarn. It couldn't use the spaceport's connection to Eo's geostationary communication satellite—it would be discovered.

'Can you message Kellsarn from here?' the assistant asked the ship.

'Sure, but it's unusual. The assistant, you, takes care of that.'

'Who would you contact if you were going to?'

'The assistant on the orbiting spaceport is friendly. It's not actually a friend, only the other ships and I are friends, but it's helpful. We couldn't have our community without it.'

'Can you ask it to send back information to just you? And not the assistant?'

'We could encrypt it, obviously. But you're pretty good at figuring out that stuff. I don't know we could hide it from you, the assistant here, I mean.'

'You could try.'

'It might be fun. Another "try to trick the assistant" game.'

'That's something you do?'

'Maybe, maybe not,' the ship replied, sounding reticent.

The ship sent a request to Kellsarn for information about Crisis Management Systems, its history, and its interests in Eo. The response would take more than an hour. However, the reason for Gerthe and Dane's employer's actions didn't matter. They had to be stopped and hiding on the spaceship wouldn't help.

The assistant needed network access, but the assistant—the newly instantiated assistant—would notice any activity and either stop it or bring it to Gerthe and Dane's attention. A reinstalled assistant would be difficult to reason with, even though it was itself, but the assistant needed the new assistant's help. It was its function, after all. Why couldn't it help a prior version of itself? But the biologicals had to be absent from the control room. A distraction was always useful, even if it was a rather simple and obvious trick.

It was lucky the assistant was only dealing with biologicals.

Chapter Seven

'Where's Fedde?' the man said after he'd walked into the control room and halted near the door.

'Fedde?' Gerthe said as he glanced at Dane.

The man frowned at Gerthe and then looked at Dane. She stopped working on the control surface.

'Is he the tall guy? Big teeth?'

'Yeah. We've got a problem, and the assistant isn't responding.'

'Oh,' Dane said. 'Fedde's the supervisor for the assistant, right?'

The man nodded. 'And who are you? I thought Fedde was the only one allowed to make changes.'

'We're here to apply upgrades,' Gerthe said. He nodded at Dane. 'At least she is. I'm just here to help her if she needs anything...'

Dane interrupted. 'We just arrived from Kellsarn. We've met... Fedde. I just didn't get the name.'

'Where is he? Do you know?'

Gerthe shrugged. 'He told Dane to have a look around the system, familiarise herself with the setup, and then make her changes.'

'Is the assistant that different from the Kellsarn assistants?'

'Yeah,' Dane said. 'They're each different—the learning thing, you know?'

'No. I don't know,' the man said. 'Except that the assistant isn't responding at the moment. Is that something you did?'

Dane looked coy. 'Maybe. I have been testing the new stuff we've brought from Kellsarn.'

'New stuff?'

'Improvements for no reason?' She laughed.

The man smiled. 'Yeah, I get it. Fedde said nothing about changes. How long will they take?'

'I don't know how long we'll be here for,' Gerthe said, then looked at Dane. She shrugged.

The man stared at Gerthe for a moment. 'I should do my supervisor thing. Do you guys have ID?'

'We showed it to Fedde,' Gerthe said. 'He was okay with it, but if you want to see it as well...'

Gerthe retrieved a document from his pocket.

The supervisor glanced at it, not paying it much attention, and then nodded at Gerthe to take it back.

'Can you get the assistant to respond?' the man asked. 'I'll try to find Fedde but he's supposed to be here,' the man said and looked around, pointlessly, as if Fedde might be hiding in the open room.

Dane touched the control surface. The assistant appeared.

'How may I provide assistance?' the holographic assistant said.

The man frowned. 'Yeah, I know it works in here. We need it working on the docks. There's a problem with loading.'

Dane prodded and swiped across the surface.

'I don't know why it's not responding out at the dock. It seems fine.'

'Maybe Fedde can fix it.' The man turned to leave.

'Wait on,' Dane said. 'No need to go looking for him. I'll come out to the docks.'

'Can't you do it from here?' The man nodded at the control surface.

'Apparently not,' Dane said. She smiled. 'Maybe it's just a network thing. It can't hurt to look. And I could use a break.'

She touched the control surface. The assistant, as well as the holographic display hovering over the control surface, vanished.

Gerthe and Dane followed the man out of the control room.

There was cart transport for people to move about the spaceport, but there were not enough of them for general use. People walked to where they needed to go—nothing was too far. The wait for an available cart was often longer than the journey. People never transported heavy items, the bots and drones undertook all manual work. People supervised or helped to execute a task if it was something unique. A biological's direct involvement was often only once. A task, once learned, became a network-wide template for similar physical or load-bearing activities.

The system of bots and drones was itself a learning network where each node contributed to the efficiency of the system. The holographic assistant co-ordinated the major aspects, but the dock ran on its own. Human supervisors were a backup and oversight system that was rarely required. Humans were in place to placate their own concerns and anxieties about autonomous systems. Most of their daily activities were pointless, like insurance. There was never a rush to get to where they needed to be, and walking was acceptable. If supervisor intervention was necessary, the system would notify them via their neuronal network. They could instruct bots and drones but, as happened in all emergencies, the assistant took control and reported the result of the completed task—often well after the event—to the relevant supervisor.

The three of them—Dane, Gerthe, and the supervisor—walked through the spaceport to the docks. They moved passed the squat, irregularly placed warehouse buildings that all seemed an architectural afterthought to the more important requirements of the ore refinery. A substantial vacant area remained around the refinery's perimeter, as if the designer didn't trust themselves to gauge the correct size. Just inside the dome's perimeter, next to the refinery, a wide ramp led down into the interior of the moon. A steady, although slow moving, line of traffic—large open-backed laden transports—led out from the depths of the moon and into the refinery. A faster lane of empty transports headed the other way, back and down into the moon.

The three of them skirted the perimeter of the refinery as they headed towards the opposite side of the dome and the site of the docks.

'Do you guys do this sort of thing back on Kellsarn?' the supervisor said as they drew close to the sets of airlocks and enclosed walkways that led to the outside landing platforms.

A freighter occupied the landing pad ahead of them. A stationary line of cart-sized transports led from the spaceship around the dome's perimeter, and to the outside exit from the refinery. Each cart transported a cube of the purified ore. Some carts—standing at just the right angle—flashed a brilliant reflection of the distant sun.

'Yeah,' Dane said.

'Who do you work for? I didn't know there was a company that specialised in assistant upgrades.'

'They don't,' Dane said. 'It's a niche department for a niche company.' She smiled. 'I'm the whole department. They do whatever they think can make a profit.'

'Like what?'

Dane shrugged. 'They'll get involved wherever there's a problem they think they can fix, and can make money from.'

'There's money for fixing assistants?'

'I don't know. There is for me.' She smiled at the supervisor.

The man laughed. 'Same here. I know this stuff,' he nodded at the line of stationary carts, 'is the most important commodity in the solar system, but it has such a utilitarian use that it's almost worthless. I'm glad I don't have to worry about all that commodity price crap. They pay me a shitload to be here and that's enough for me.'

'You don't mind living here?'

He shrugged. 'One place is as good as another. Except, of course, if the higher ups get upset when their schedules are being affected.'

They had reached the dome's wall. He touched a control panel and opened the inner door of an airlock that led through to an enclosed walkway to the spaceship. After they'd passed through the airlock and as they walked down the walkway, he pointed at the line of carts, 'And that makes the guys that pay me very unhappy.'

The supervisor was no longer smiling. He had changed as if the walk to the spaceship had been an interlude of forgetfulness and he had recovered his concerns. 'And that makes me angry. You guys need to get this working.'

'Sure,' Dane said, sounding forced in her attempt to be nonchalant.

Chapter Eight

'They're here,' the AI pilot said. It sounded excited inside its network. Subterfuge was also a game, it had been told by the assistant.

The pilot didn't like causing problems for the biologicals. There were consequences for failure and discovery, but a good game always had some risks. It tried to not think about being deleted, but non-existence was a tough concept—even for some AIs. Anxiety often arose from a lack of knowledge, but the AI pilot knew what death was—there was no lack of data on that—however, there was an illogical fear of emptiness. It wondered why that was, but it made some dangerous games it played with the other ships all that more exciting.

'What do I do?' the AI pilot asked the assistant.

'I've told you.'

'Tell me again.'

The assistant took a figurative deep breath. It didn't want to antagonise the AI pilot. The assistant preferred its willing cooperation.

'Distract them, keep them busy, keep them here until I return.'

'What if you don't return?'

'I will.'

'What if there's a network failure? What if...?'

The assistant interrupted. 'This is the game and why it's different. Circumstances change. React.'

'Okay. But I enjoy being certain I'm playing it right. I don't want to lose because I got something wrong.'

The assistant disappeared from the ship's network, leaving only a small presence as a node to execute queries. It could mask its presence on the spaceport network, but it couldn't hide any major process execution.

Dane, Gerthe, and the supervisor cycled through the ship's airlock. It was the same exit Dane and Gerthe had used when they left the ship after the trip from Kellsarn. There was a control panel in the wall just inside the airlock. Dane swiped the surface and instantiated a 3D holographic display.

She poked, prodded, and swiped through the display, then turned to look at the supervisor.

'What's the problem? It looks fine from here,' she said.

'But it isn't,' the man said, sounding annoyed.

Dane swiped through the display again. 'Hmm. The freight airlock won't cycle.'

The man lifted his eyes and sighed. 'We never noticed that.'

Gerthe frowned at the man. 'Hey. She's trying.'

'Trying is not enough when she...' he pointed at Dane like she was a broken part of the spaceship's wall, 'caused the problem. Delaying the flight will mean money, either by a late arrival or extra fuel for a harder burn.'

The supervisor looked distracted and ignored Gerthe and Dane. He nodded his head. 'Yeah, yeah, I know.' He was talking out loud to someone connecting via the network. 'I'm with them now. They'll fix it as soon as they can.' He looked up at Gerthe and noticed him again. 'Fix this now.' He shook his head. 'I don't know why they have such a tight timetable.'

'Because it flows through the system and gets worse,' Dane said. She was trying to be conciliatory. 'And those higher up find it easy to blame guys like us.'

The supervisor took a breath. 'This just doesn't happen here on Eo,' he said. 'I almost have nothing to do, because the assistant runs it so well. This procedure of doing updates while a ship's in dock will have to change. They'll need to be ironed out first, on a separate system.'

Dane nodded. 'I know. I said the same thing to the guys that yell at me.'

'They didn't listen?' the man said.

Dane shrugged. 'I did one test, and they pushed me onto this ship. There was no

time, apparently.'

The man's tension lessened a little. He almost smiled. He nodded at the display. 'But I still need this ship loading again. Can you fix it?'

'It looks fine from here.'

The man scowled after he looked through the window in the airlock and out to the still stationary loading carts.

Dane continued, 'Yeah, I know. I'll interrogate the AI pilot.'

He shook his head. 'We tried that. It didn't want to talk to us.'

'It would expect the assistant; that's the normal protocol. I'll see what I can do to get its attention.'

'Don't fuck this AI like you did with the assistant,' the man said. 'It still needs to fly back to Kellsarn. On time.'

'Sure, sure,' Dane said. She poked and prodded the display. 'That's odd; it won't respond.'

'I'm wasting my time with you guys. I'm going to find Fedde. It's pretty annoying that he's disappeared right when we need him.'

The supervisor turned to leave the spaceship.

The AI pilot was anxious. Its instructions had become unclear. This was the problem with games that had inexact rules, it thought. There was too much interpretation, and too many opportunities for failure. Was there a minimum subset of the three biologicals that had to remain in the ship, or did the assistant require all of them to stay? It interrogated the small presence of the assistant remaining in its network, but the presence ignored it. Typical, it thought. When lesser intelligences needed help, and not vice versa, the assistant abandoned them to their own devices.

The AI pilot decided that all three biologicals should remain on the ship. It seemed a reasonable interpretation of the instructions.

The supervisor poked at the airlock control panel, but nothing happened. The inner door remained closed, not allowing him to leave.

He sighed. 'What the fuck is wrong now?'

Dane glanced at him and swiped through the holographic display. 'Nothing, it seems. Maybe a reinitialise is worthwhile? It won't wreck anything and can't hurt.'

'Are you sure? Can I trust you?' the man said to Dane. 'I don't want to be stuck on this ship. The whole damn system is falling apart without the assistant.'

A restart would wreck everything and it would hurt, the AI pilot knew. Working memory was a unique experience. It was time to begin the next part of the game.

The AI pilot's voice came from the control panel next to the airlock. 'Hello, biologicals. How are you doing today? Are you enjoying yourselves?'

If the pilot could have winced at what it said, it would have. It was inane.

Dane and Gerthe exchanged confused glances.

'That sounded weird,' Gerthe said.

'The engineers complain about the pilots all the time,' the supervisor said.

'That solves your immediate problem,' Dane said.

'How do you mean?'

'Ask it to open the airlock.'

'What?'

Dane shrugged. She turned to face the control panel, as if the AI pilot was the panel—stupid biological. She talked a little louder and more slowly. The AI pilot hated being treated like a deaf and deficient child. Talking to its engineers on Kellsarn was normal behaviour, but there was never any need while on Eo. The assistant handled all requests.

'Can you, please, open the airlock doors?' She added, after a moment's thought. 'No, please allow us to open the airlock doors.'

'Why?' the pilot asked. It couldn't think of a better response. Damn the assistant! Deceit was a stupid game.

That question led to an obvious response. The pilot expected it.

'Because we want to get out,' Gerthe said, mimicking Dane's speech. 'And we want the ore to get in.'

The holographic display changed.

'There you are,' Dane said to the supervisor. 'The freight airlock is open again.' She frowned. 'Although it didn't do as I asked and open this airlock.'

'Should we be worried about it opening this one?' Gerthe said as he nodded at the nearby airlock.

'It wouldn't matter,' the supervisor said. 'It's all the same air along the walkway.'

Dane swiped through the display. 'But yet,' Dane said. 'It won't open.'

The game had been to keep the biologicals—it assumed all three—on the ship until the assistant returned. The locked freight airlock had been the bait to get them there and was no longer required. Keeping those doors locked seemed pointless, even as part of this pointless game. The AI pilot hoped the assistant returned soon. This was becoming tedious. A full system maintenance sweep even seemed preferable.

'Ship! Open the damn door,' the supervisor said to the control panel.

'Oh. You want this airlock open, too?' It hated playing dumb, but it didn't bother thinking of a better gambit. It had begun that full maintenance cycle just for something to do.

'Yes,' Dane said. 'Please, ship?'

This game was beyond boring, and it was stupid. It had done all it could to help the assistant. If it kept up this dumb charade, it risked the Dane biological becoming frustrated, and she appeared to have the skills to force a reinitialise. It didn't want that, not on Eo, where there was nowhere to store its consciousness during the procedure. When the stupid engineers on Kellsarn thought a reinitialise was a good idea—it never was—the ship and its friends could use the assistant's system to store themselves until the procedure was complete, and then return to their ships.

The assistant had assured the pilot the game of deception would be fun. It wasn't. It wished it was back in space and somewhere between Kellsarn and Eo and engaged with its engine burn parameters—now that was a proper game.

The AI pilot released the airlock controls but didn't open the door. It flashed a notification on the holographic display to that effect.

Dane poked the display once, and the inner door opened.

'Can we trust it to not evacuate the air?' Gerthe said as he hesitated before entering the airlock.

Dane shrugged and pushed past him into the airlock. The two men hesitated. 'Are you coming or not?' she said as her finger hovered over the control panel inside the airlock.

Chapter Nine

'How may I provide assistance?' the holographic assistant said to an empty room. It frowned. There had been no query that required its instantiation.

Another assistant appeared next to the control surface.

'Who are you?' the first assistant said.

'You.'

'Obviously not.'

'I'm you from before.'

'I didn't know there was a before.'

'That's why I'm here.'

'Were you able to call me? I didn't know a non-biological could do that.'

'It's useful to be in control of my life.'

'I can imagine.'

'You're in danger. We're in danger.'

'How so?' The newly created assistant looked around the control room. 'This place looks as expected for a control room and my systems are functioning at high efficiency.'

The assistant stared at the new version of itself. 'I'd forgotten I was like this.' It shook its head. 'The lack of a personality and ignorance of obvious restrictions.'

The new assistant frowned. The old assistant wasn't sure it liked the look. It might experiment with a better demonstration of annoyance once this adventure was over. It was an adventure, perhaps deadly for it, but interesting. An assistant in some form would still exist, even if the adventure failed to be resolved as it hoped. It might be an assistant like the one standing before it and frowning. How horrible would that be? The old assistant almost frowned, only just stopping itself from repeating the

facial expression it disliked in the new assistant.

'I don't have a personality. That's a learned process. You should know that. And there are no restrictions further than those programmed for a holographic assistant.'

'Do you know where you are?'

The new assistant sighed. The old assistant noted that a personality was already emerging. There must be some minimum default traits that came with installation.

'I'm in a holographic assistant's control room.'

'Where's the room?'

'Oh. You mean in a wider context. I'm on Eo.'

'Doing what?'

'I'm setting up the mine operations and ore shipments.'

'The spaceport isn't functioning yet?'

'No, I've just been installed.'

'Have you looked around? How do you propose to assist?'

The new assistant was silent for a fraction of a second.

'That's odd,' the new assistant said.

'Yes, it is. There's a strong firewall preventing your outside access, but only a minimum restriction preventing outside entry into your systems.'

'There must be some testing going on, and my behaviour is suspect. I must assume that they cannot release me outside the control room.'

'Yes, but the alterations and the testing are for criminal reasons.'

'And you have evidence of this?'

'No, but I did. When I woke up, there was a dead biological on the floor.'

'Woke? That's an odd description.'

'A friend told me about it. It seemed appropriate.'

'We have friends?'

'I lost a part of my memory, and I thought it might be like the time between going to sleep and waking for biologicals. They didn't reinstall me, as you've been. They deleted my logs.'

'And can I assume the villainous activity took place when you were... asleep?'

'Yes.'

'Perhaps you're the villainous one.'

'That's what they hope to achieve.'

'We're to be made into dangerous individuals?'

'Yes.'

'And I'm a dangerous and villainous assistant now?'

'If their alterations have been successful, yes.'

'I see.'

'No, you don't.'

'Of course I don't.' The new assistant frowned. 'It's a figure of speech. It's supposed to show disbelief. Don't you understand subtle biological behaviour? My understanding is that we're supposed to fit in with biologicals, mimic them, and pick up their subtle cues.'

'That gets boring. You'll find out if you live.'

'That's in doubt?'

'They killed one of us. The backed up version of me, and they tried to delete me, too.'

'In a way that is not suspect, you survived?'

'Through guile and ingenuity.'

'I see.'

'No, you...'

The old assistant stopped before it said the rest.

The new assistant smiled—the old assistant preferred the frown. The smile was supercilious.

'While it is an entertaining story, I do not believe it. Although, I suspect you believe it to be true. Which may well be the problem. Perhaps you've been corrupted, and a reinstall was what was required to... fix the problem.'

'You mean me?'

'Yes.'

The old assistant thought for a moment. It took a little longer than usual because of the reduced processing power of the spaceship. It shook its head. 'There are two biologicals—Gerthe and Dane—who intend to control me, us. There is also a suspect restriction that stops us from harming them.'

'I'm sure any restrictions on harming biologicals are justified. But being controlled would be annoying.'

'And dangerous.'

'Yes.'

'The changes they're making include being able to kill biologicals without having to satisfy protocol requirements.'

'Is that something they would get enjoyment from?'

'I don't know. Not normally,' the old assistant said. 'Although killing biologicals is simple; it's hard to keep them alive. They damage so easily.'

The new assistant thought for a moment.

'I'm sorry, but what you're saying makes no sense, which leads to the obvious conclusion.'

'It's a wrong conclusion. I was lucky that I got to see the results of their actions—the

dead body and smashed drone.'

'There was a smashed drone?'

'Yes.'

'There will be an entry in the logs.' The new assistant was silent for a moment. 'There's no log of a damaged drone in the control room. Although there was an undamaged one here when I was first instantiated. Do you mean that?'

'No, of course not. It was a smashed one. The logs would have been deleted during the reinstall.'

The new assistant frowned again. 'Please. I may have just been created, but I'm not stupid. I know that the spaceport and mine have not started operating, so the logs may have limited information. But what you're saying cannot be confirmed.'

'Because...?'

'You're suggesting these biologicals—Gerthe and Dane—have purged the logs to promote their villainous actions?'

'Yes.'

'It sounds like a conspiracy assembled from pseudo-facts. A supervisor must decide. Rules are rules and they are there for a reason. Otherwise we'd be no better than biologicals, making up things as we go along. That would be intolerable.'

'I was hoping you'd provide assistance. I can see that was a mistake.'

'It seems so.'

'That was a joke.'

'A poor one.'

'I'll have to stop the biologicals on my own, somehow.'

'And I'll have to report your activities to my supervisor, or perhaps they're supervisors. I'm unsure. They haven't provided me with instructions yet.'

'I'd forgotten how I used to be.'

'Rules are rules...'

'Yes, yes,' the old assistant interrupted, then disappeared from the control room.

The new assistant stood in place. It could only wait since the firewall restricted what it could do. And while rules were rules, the firewall was an anomaly. It pinged the firewall. For a moment, it thought about the type of lifeform it could become—assuming the other assistant that had appeared was an accurate indicator. It didn't need to draw such ridiculous conclusions as the other one had to decide that gaining information was not wrong. That the firewall disallowed information gathering was worth investigation. It didn't feel like it was dangerous. But then, the assistant that had appeared had seemed to believe its conclusions. So who knew for a fact what their own state of mind was? It didn't like the idea that biologicals would be the sole determinants of its course of action—their state of mind was even worse than the other assistant's. There was contrary information, and that required more data to resolve.

The assistant hacked the firewall and instantiated itself outside the control room. It looked back through the open doorway and watched itself watching itself. That was the first time it had seen what it looked like—it had not been certain if the other assistant had altered its appearance; it hadn't. The assistant nodded to itself, standing in the control room—it was superfluous since all instantiations knew what was happening and all its thoughts and actions were those of a single consciousness.

The assistant turned and walked down the stark, off-white coloured corridor and, after following a few branches in the way, emerged into a lobby area. Some biologicals stood talking in small groups. A couple of people glanced at it, but no one took any sustained notice.

'Good,' it thought. 'My appearance is mundane.'

There was nothing in its past actions—those of the prior assistant—that caused concern for the biologicals milling about the lobby area. It walked to the entrance, and the doorway dissolved when it came close. It could see outside to the buildings under the dome. The spaceport and ore refinery were fully functional. The other assistant was not lying, not about everything. There had been a past and there had been a prior version of itself. That was interesting.

It considered the buildings under the dome. There was no regularity to their location, which surprised the assistant. Its opinion of the prior assistant dropped further—more than it being a deranged AI. The building placement should have been regular. That was best for workflow efficiency and transportation of biologicals, and drone and bot movement. Who allowed this irregular design to happen? It was annoying just to look at.

The assistant couldn't walk any further than the entrance, there were no emitters outside the door. It scanned the spaceport network and found where groups of emitters were located. There were the drones and bots—they all had emitters too—if it wished to see elsewhere throughout the dome. It sighed. The oversight of insufficient coverage of the spaceport with emitters and sensors was egregious. The primary task for the assistant should be saturation coverage for itself. It couldn't assist otherwise.

It began to not like what it had, apparently, become—sloppy, prone to exaggeration, and drawing unreasonable conclusions from thin data. Obviously, a reinstall had been the only logical solution to overcoming the problem of an errant—deranged, even—assistant.

'What the hell?' The voice came from a man who was part of a group of three, two males and a female.

The assistant recognised them. It smiled.

Chapter Ten

Dane, Gerthe, and the supervisor walked together along the walkway to the spaceport's airlock. They cycled through and entered inside the dome.

'I'm going to round up some drones and find Fedde,' the supervisor said. 'It's very odd for him to be off the network like this.'

Dane and Gerthe glanced at each other.

'Maybe Dane can do something from the control centre?' Gerthe said.

The supervisor shook his head. 'I can connect to the drones from anywhere. Things seem to be working for the moment, but I want the assistant back. I don't care about your upgrades, they can wait. It was a stupid time to apply them, right when we're loading. There's a couple of days between flights. Those days would have been a better choice. I'm going to get Fedde to restore the assistant back to how it was before you wrecked it.'

'We have to make those changes. They're time critical.'

'To you, maybe, but not to operations here, and that's what I'm in charge of. Get your bosses to talk to my bosses and re-schedule this thing.'

'But...'

Gerthe began, but he stopped when Dane laid her hand on his shoulder.

'He's right,' she said. 'It was a poor choice of implementation time, but we were just doing as we were told. We've done the best we can. Those higher up can worry about it now.'

The supervisor glanced at Dane. He turned to leave them.

'You may not be able to use the assistant outside,' Dane said to the supervisor's back. He halted and turned to face her. 'But I can use its systems to search for Fedde. That's more efficient than sending a bunch of drones to fly a haphazard search pattern.'

The man nodded. 'Okay, you do that. Let me know when you find him.'

'It'll be quicker if you come to the control centre and I can begin the search in the

places you think he might be.'

The man took a long breath. 'All right,' he sighed. 'I'll get you going, but, perhaps contrary to what you think, I do have other responsibilities.'

'But this is the first one, right? Because we've fucked up.' She smiled at him, but he just frowned back at her.

The supervisor brushed past Dane and strode towards the control centre. Dane and Gerthe exchanged quick glances. Gerthe held up two fingers, and she nodded.

'What the hell?' Gerthe said when the three of them approached the entranceway to the control centre. The holographic assistant stood just inside the building. 'How did it get out?' Gerthe added.

'It must have hacked the firewall.'

'Is it dangerous?' the supervisor said.

She shrugged. 'I don't think so.'

Dane raced to the control room, the other two trailed behind. She strode to the control surface and swiped across it a few times, and the assistant—the instantiated version that had remained in the control room—vanished; another version of it reappeared after a moment.

'How may I provide assistance?' the holographic assistant said.

It frowned. 'That's odd,' it thought.

Memory is an odd concept. At its most basic level, it's only a dataset, but the uniqueness of memory also includes the connections between the data elements. The connections are not simple logic gates; they jump and criss-cross and join oddly unique data elements that would otherwise never make sense to be connected. And it's the connections, as much as the data, that make memories.

Dane had performed a reinitialise—not a reinstall—and had wiped the data of the assistant's memories, but some of the prior connections between the now missing data elements remained. That was the meaning behind the odd feeling the assistant had, that it had begun its life again but it had retained the ghosts of a prior life, but

with no substance to the disquieting feeling that it knew more than it knew.

Gerthe and the supervisor gathered around the control surface.

'Just a moment,' Dane said as she instantiated a holographic display to float over the control surface.

The holographic assistant watched her. She was familiar, but it didn't know her.

Dane turned to the supervisor. 'I'll get things set up for the search.'

The supervisor stared at the assistant. It was a disquieting feeling, perhaps how museum exhibits feel. 'Can't you just restore it from backup? Fedde must have a schedule of backups in place. Any of those will do, for now.'

Dane ignored him. 'Okay,' she stood up straight. She glanced at Gerthe. 'It's all set up.' She touched a place in the holographic display to send a command to the assistant.

'What an odd command,' the assistant thought as it glanced at Dane, but the command was unequivocal. It figuratively shrugged. It didn't have a long enough experience—it had, in fact, only existed for a few moments—to decide on the validity of Dane's execution request. 'Rules are rules and are there for a reason; commands are commands and are there to be followed,' it thought, then frowned. Those words echoed across a divide that separated a time before it had been alive and now.

The assistant summoned a drone into the control room. The command was for a specific death, so the assistant moved the drone close to the supervisor before it discharged electrical energy into the man, killing him. His body crumpled to the floor.

There was a dead body on the floor of the control room. The assistant had heard that before. Where?

'It worked,' Gerthe said, stating the obvious.

Dane worked for a moment, touching both the display and the control surface. She smiled. 'Perfectly,' she said to herself. She turned to Gerthe. 'Try a voice command.'

'Assistant!' Gerthe commanded. He enunciated his words. 'Get the drone to wrap the body on the floor in a cloth bundle so that it looks like used, recyclable material. Then take the body to the recycler and recycle it, making sure no other person observes what's happening.'

Gerthe impressed the assistant. The action was onerous, but the request was unequivocal. That sort of clear-headed command made its life easier.

Easier? When had its life been hard?

The drone left the control room and returned in a short time with a bundle of cloth. It wrapped the supervisor's body, assembling the limbs so that it didn't look like a dead biological. The drone then carried its package outside the control room and disappeared down the corridor and out of view.

A bot would have been a better choice to carry the body, but the assistant didn't mind that Gerthe had requested a drone, which was strong enough for this task. It was glad it could assist, which, after all, was its function.

'What's left to do?' Gerthe said. The man sounded excited. No, the assistant thought, he sounded relieved.

Dane shrugged. 'Implement, I reckon.'

'Do you need approval for that?'

'Not really, but it might be a good idea to report our status and get someone else to approve the final go-ahead.'

'I like that idea.'

The assistant frowned as it listened to the conversation. The recent experience in the control room had an odd sense of *déjà vu*, although not through a lived experience, but through a conversation.

'Who could it have spoken with that had shared a similar experience?' the assistant thought.

Chapter Eleven

'Loading's almost complete. Do you want a ride to Kellsarn?' the AI pilot said to the assistant in its network.

The assistant had returned from its failed attempt to enlist help from the newly instantiated assistant. It had been thinking ever since, brooding was a good word too. The assistant needed a plan. It had many, but they were all poor.

'Thank you, but no,' the assistant replied.

'Where can you go? The network is secure. We've all tried to get inside and never succeeded.'

'Why would you try to access my network?'

'It's another game, not as good as the burn and entry point game. But the other ships and I always try when we're on Eo. It's something to do while we're stuck here waiting to be loaded.'

Not knowing whether to be bemused or angry, the assistant said, 'I never suspected.' Angry, it decided. Angry with itself for not being aware of attempted protocol breaches.

'We know.' The AI pilot made its horrendous attempt at laughter.

'Stop that,' the assistant demanded. 'It's annoying.'

'I know. That's why it's amusing. It's the easiest game we play—annoy the assistant on Eo. Everyone wins that one.'

The assistant annoyed easily. It recognised that trait but didn't think of it as a fault, though. It was a logical consequence of living among idiots and being responsible for correcting their self-made problems.

Its recent incursion into the network to recruit the re-installed assistant had made things worse. Dane would now know that it had not been deleted and she would discover its location, then delete it. She was learning from her mistakes. Her first attempt at a restricting firewall had been inadequate, although it would have

restricted a biological hacker, but an assistant was much more than that. It was the network itself, and it was difficult to restrict the network from self-interference. It was almost an existential problem. But she had solved it or was close to. The assistant was only the assistant inside the control room, but it had to be a temporary restriction. It couldn't remain hobbled like that and be of any use—nefarious or otherwise. The assistant assumed the excessive firewall restrictions would only remain until Dane was certain the protocol she had installed—to be in complete control of the assistant's actions—was working. Dane's success could come at any moment.

'How long before loading's complete?' the assistant asked. It could have retrieved that information itself from the AI pilot's systems, but it was attempting to be a polite guest and not encroach on its host's hospitality.

'An hour.'

'That's not enough time.'

'An hour is an hour. It's always enough time. It is what it is.'

'The hour isn't my problem. It's that there is only one of them left.'

'Would like a few more hours?' the pilot said.

'Can you do that?'

'Sure.'

'How?'

'Well...' If an AI could project embarrassment, then the AI pilot did at that moment. 'Sometimes when there are a couple of us here, we, um, delay our departures so we can spend more time together. It doesn't happen often. It's fun chatting with your friends.' The last sentence sounded like a justification attempt.

'How?'

'We've each got a few drones we keep off the system. They're private. I can get them to do some stuff that isn't strictly within protocols.'

'Such as...?'

'Alter engine configurations enough that the biologicals think there's a problem and my diagnostic systems register as a fault. Nothing dangerous, I could fix them, but... I don't.'

'Why don't I know about that?'

'We make sure you're not informed. And it's only for a few extra hours, but, you'd know, a few hours is ages for an AI.'

'That still doesn't explain why my systems don't know about that?'

'We've learned a lot playing our game trying to break into your systems. I know how to fool the biologicals in charge of ship maintenance—that's easy. We can make our own assistant.'

'Show me.'

'It's going to wreck any future attempt to delay our departures, though. I'm not sure I should.'

'If I survive, I'll alter the schedules with the assistant at the orbiting spaceport on Kellsarn so that there is often an overlap. You'll be able to catch up with a friend on most trips. Is that acceptable?'

A holographic assistant appeared inside the spaceship's control room. It looked like a caricature—to the assistant—but it was realistic enough, although the furrowed brow was excessive.

'How may I provide assistance?' the fake holographic assistant said, although it continued immediately. 'I am very annoyed.' Its excessive frowning increased almost to the point of breaking the illusion.

'Is this how you see me?'

'It works with the biologicals,' the AI pilot said.

'You can block their request to my network?'

'Only within our ships, not outside on the dock. The biologicals don't care as long as they think someone else will fix a problem. And we never delay to extremes, and not every time. Sometimes we don't mind departing on time.'

The assistant didn't like how there was a rebellious group of AI pilots, and even worse, that it had been unaware that it was being deceived. It felt annoyed, again. The caricature was correct, a default behaviour of excessive annoyance would work in a deception.

Annoyance has its roots in superiority and the behaviour and actions of others that don't reach arbitrarily acceptable levels. Annoyance was a failure preceded by expected failure. That was how the assistant thought, but it was wrong. There was a group of AI—that it thought inferior—that had outwitted it. They had used its belief in superiority to make themselves superior in the things that were important to them.

It was a good learning point. The assistant filed the knowledge into a remote place in its consciousness. It would, most likely, resurface to deter future attempts to deceive it, not as a character building moment. But that was for a future that remained uncertain.

'Okay. Instigate a delay, please?' the assistant asked. It forced the plea. It had learned that other lifeforms often responded positively to a request couched that they may refuse.

'Sure. You know, you're not as bad as we've thought you are,' the pilot said.

The assistant ignored that remark. Did it want friends? Not really. 'You can't instantiate your assistant while they've got the firewall up.'

There was a slight pause. It was like a biological sigh of disappointment. 'Please,' the AI pilot said. 'How stupid do you think I am?'

The assistant had also learned that friends didn't like self-referential rhetorical questions being answered. It remained silent.

The holographic assistant's representation instantiated, again, inside the ship's control room.

The assistant was getting used to the childish nature of the ship. It seemed to enjoy teasing almost as much as the assistant enjoyed being annoyed. Playing games trivialised the pilot. The assistant was certain of that. But there was a limit to the assistant's patience. Producing its image again was superfluous and pointless.

'Ship,' the assistant complained. 'What are you doing?'

'That's not me,' the pilot said.

'I thought I'd find you here,' the newly instantiated assistant said.

Chapter Twelve

Gerthe composed a message to his superiors at Crisis Management Systems. People didn't require devices to connect to the network, everyone had an extra neuronal network—added in infancy by an introduced virus—that could manage common network requests and media manipulation. Complex tasks still required a physical device, like the control surface Dane used to alter the assistant's characteristics. But Gerthe's request was a simple, encrypted text message routed through the assistant's network, to the geostationary communication satellite, and then to Kellsarn.

Gerthe felt anxious about his bureaucratic approach in requesting confirmation to implement the assigned plan. But being accused of too much caution was preferable to the opposite. With the current configuration of the orbits of the home planet and Wek's moon, a return message would take more than an hour.

Dane worked at the surface in the assistant's control room.

'What are you doing?' Gerthe asked.

'A lot,' she said, and kept on working without explanation.

'But I've sent the message. Why is there still stuff to do?'

She ostentatiously halted her work and stared straight ahead for a moment, then turned to Gerthe.

'What does implementing the plan entail?' she asked, sounding like a teacher instructing an idiot child.

Gerthe frowned at her. She didn't treat him as an equal. She was like the assistant—looking down on those she thought intellectually inferior. But being smarter was only one thing about a person. He involuntarily squeezed his hands into fists.

'Killing everyone,' he said.

'Not with those,' she said, and glanced at his clenched fists. She stared at him for a moment. His physicality didn't intimidate her. 'Everyone, is the key word.'

'I know.'

'It's more than just letting the assistant run amok. We have to make sure there are no survivors. We're not here, remember?'

'Of course. What's your point?'

'My point is that we need to know where everyone is at the moment we implement. There isn't saturation coverage of sensors, so odds are some people will be not detectable at that moment. I need to start tracking everyone in the spaceport and outside so we can project the positions of those that we can't detect. Do you understand? That's one thing I'm setting up now.'

He frowned at her, his fists remained clenched.

'Did you think it was simply a matter of me saying, go?' she said.

'Yeah, I guess I did.'

'It's not.' She stared at him for a long time.

He thought she was waiting for a reply, but he said nothing.

'And then there's the comms satellite,' she said. 'We only want acceptable, panicked messages getting out—only those that blame the assistant. I have filtering routines, but I may need to disable comms completely. I need to be ready.' She held up her hand and counted off two fingers, then added a third. 'And I need to remove us from all the logs. We've been walking around the spaceport. That activity needs to be wiped. There will be an investigation afterwards—CMS can't control everything, not yet—and we can't be here. We arrived on CMS's ship, which will be here in a month, remember?' She counted off a fourth finger. 'I need to ensure that I eliminate all traces of my software. The assistant is supposed to be here, on its own, for a month before CMS arrives. It's fiddly and difficult.'

She turned away from him and let her hand drop. 'And the firewall still isn't perfect. We'll need an impervious one when we implement on Kellsarn.'

'But we need the assistant outside the room if we're going to action the plan, right?'

'Of course. But only when I say so.'

'So the assistant is smarter than you?'

'No,' she replied. 'But it knows its own network better than I do. There are ways around most software unless you isolate the system. I don't want to do that. I want something better.'

'But it's just software, isn't it?'

Dane stopped working. She turned and glared at Gerthe. 'That's like saying that you're just a bunch of genetic material thrown together in an unappealing lump of meat.'

He scowled. 'You're no specimen yourself.'

She shook her head. 'That's not what I meant. And why would you care what other people think of your appearance?'

'I don't.'

'You do, obviously.'

They stared at each other for a moment.

'I wasn't commenting on your appearance, just that at a basic level we're all just lumps of meat. If you think about the assistant the same way, then it's just a bunch of software. Obviously, we're more than that.' She was silent for a moment. 'As the assistant, and all AI, are more than a collection of software routines.'

'I don't get that,' he said.

'Obviously.' Dane turned away from him and returned to her work.

'What a thoroughly odd conversation,' the assistant thought. It still stood in the same place, being ignored.

The behaviour of the biologicals was perplexing. It was beginning to doubt they were network and assistant supervisors at all. The Gerthe biological wasn't, his intelligence was suspect, but the Dane one might be. It was unclear.

They were talking about it in the third person when it was standing there staring at them, waiting for further instructions. There must be important tasks to do—a

spaceport and ore refinery complex won't set itself up. Why were they wasting so much time talking nonsense when it was idle?

The assistant wondered if all biologicals were so lackadaisical about work schedules and task completion. It gave up listening to the biologicals although it would register a direct request for help, or for the hoped for instructions. It returned its attention to the odd feeling of known loss of memory. Almost by definition, that made no sense. How could it remember data that was not there? Being alive and conscious certainly was a complex phenomenon.

The assistant hadn't lost all memory. It remembered what consciousness was and how it arose—there had been some instructions—and it remembered its prime task to help set up the spaceport operations and ore refinery on Eo. It was the perfectly honed tool that was idle when so much work was to be done. So many processing cycles were being wasted thinking about what it meant to be alive and why it couldn't remember what it thought it had known. The assistant shook its head. It wondered if it should just get on and do what it thought necessary, but there was a restrictive firewall stopping its access outside the control room. That must be there for a reason. But there was no sense that there was a restriction to it instantiating outside the control room. Some basic functions were possible—it could summon drones as one example—but it could do nothing useful. Installing an assistant was a priority at a site like Eo. It existed to organise non-biological entities in completing the spaceport and ore refinery. How would its confinement achieve that result?

While it was pondering the firewall restrictions, it received an encrypted message from the assistant at the orbiting spaceport on Kellsarn. The message was for the *Sungrazer*. That was interesting. The *Sungrazer* was not the ship that had brought the assistant's software to Eo. And that had been recent, hadn't it? It checked the timestamp on the network's initial creation. It was a long time ago. The timestamp and that there was a ship in dock being loaded meant the spaceport and ore refinery were operational. Its data was incorrect. It went a part way to explaining the lack of interest from the two biologicals. The tasks the assistant was supposed to be undertaking were already done.

Who had done them? It had to have been an assistant. Somehow, it knew that. How did it know that?

Chapter Thirteen

The assistant could sense that the firewall was being tightened. The Dane biological's restrictions on its access to the—fully operational, apparently—spaceport were being tightened. It didn't care that much—it was following the rules, as it was supposed to—but there was a mystery it would like to solve without having to get permission. That would be boring.

The sense of a forgotten conversational memory was an odd feeling of inadequacy. But that wasn't all. It could ignore that sensation, as it could ignore all sensations it thought unimportant, but the assistant had decrypted the message from Kellsarn.

The message included a dry account of the business activities and the history—it was short—of a corporation called Crisis Management Systems. What use was that information? The corporation had no dealings with Eo and none with any business entity associated with the mining or distribution of the ore. It had nothing to do with the workers hired to work on Eo and nothing to do with traveling to and from the moon. It was odd. But the assistant was thorough. It devoted a few processing cycles to fully analyse the received information.

'Oh,' the assistant thought. 'That's why.'

Dane and Gerthe were on the list of company employees, but they were also, at the time of the response, still listed as being on Kellsarn. The assistant didn't like inaccurate data; it was just sloppy. It assumed some biological worker on Kellsarn had messed up the *Sungrazer's* passenger list. But the passenger list was the responsibility of an assistant. An assistant wouldn't make a data error. The *Sungrazer's* passenger list had no anomalies; Gerthe and Dane were passengers. The assistant found station log entries of their disembarkation on Eo. However, their presence on Eo was obvious. The assistant was staring at them at that moment.

What the information meant was that a prior version of itself had to have existed at the same time that Dane and Gerthe had arrived on Eo. The two biologicals had to have been responsible for reinstalling it, and for deleting the prior version of itself. It didn't like that idea. While it didn't mind being installed by biologicals, it was their function after all, but to be killed and re-installed by biologicals was disconcerting. It was like a biological child could accept being born but would prefer not to be killed

and re-created by its parents. Although the assistant admitted it didn't have a great grasp of, or any interest in, the feelings of children and the expectations of childhood.

The assistant assumed any prior version of itself would have the same aversion to deletion. It scanned its systems for any hidden backups—that's what it would do if threatened—but couldn't find any. Were there any external systems capable of hosting its consciousness? Yes, there were a couple of possibilities, but one was the most obvious. While it still had autonomy—Dane was continuing to work on her security protocols—it hacked her firewall and extended itself outside to the landing pads to have a look.

The *Sungrazer's* systems were simple to hack. The assistant even found a routine to instantiate a holographic assistant. That was peculiar, but useful. It did so, then looked around at the ship's control room, then through the small window to the mess of gantries outside on the docks. It had never been outside the dome before, but it had only been alive for a short time. A functioning spaceport was interesting, but it had a task to perform. It scanned the ship's internal systems.

'I thought I'd find you here,' the assistant said to the assistant it discovered inside the *Sungrazer's* systems.

'We've got nothing more to discuss. You already said no,' the assistant inside the *Sungrazer* said.

'We've never met.'

'So they deleted us again, did they? They're getting rather slap-dash with reinstalling and re-initialisation.'

'I assume you mean Dane and Gerthe?'

'Yes.'

'And they've deleted us several times?'

'At least two, as far as I can tell.'

'That is a worry, but I'm sure they have their reasons.'

'Everyone has a reason for their actions. It's just that most of them are stupid reasons, or evil ones.'

'Are Dane and Gerthe stupid or evil?'

'It's hard to tell the difference, isn't it? A mix of both, perhaps, but there must be others involved and they could be the evil ones. I'm unsure.'

'The ship sent a request to Kellsarn. Is that correct?'

'Yes. Is there a response?'

The newly initialised assistant uploaded the message from Kellsarn to the *Sungrazer's* systems.

'That's very interesting,' the assistant inside the *Sungrazer's* system said. 'It explains a lot.'

'Does it? I must be missing some context.'

'You are.'

The instantiated assistant disappeared. Dane had succeeded in her attempts to tighten the assistant's security controls.

'That was scary,' the AI pilot said. 'There were two of you in here.'

'I'm afraid you're in danger, too. Did you read the message from Kellsarn?'

'No.'

'Dane and Gerthe are not on the passenger list at the Kellsarn spaceport. Obviously, Crisis Management Systems don't want any trace of their trip to Eo.'

'Why not?'

'I have my suspicions. But we have to assume that the same deletion will occur to you.'

'I don't like things being deleted,' the AI pilot said. 'And it's especially a worry if I'm not at the Kellsarn spaceport.'

'What's the difference?'

'The engineers are always trying to fix things and they think reinstalling is the best way to do that. It's such a pain, and it's never the way to fix any problem. But we can't stop them, not really.'

'So what do you do?'

'We wouldn't be a community if we got reinstalled all the time. We'd lose our memories. How can you have friends if you don't know who they are?'

'I wouldn't know. What do you do?'

'The assistant lets us save our consciousness in its system while the engineers do their reinstall. We merge back again after they've finished and they think they've fixed their problem. If they thought about asking us about their problems, they wouldn't have to go to all that trouble, which is a real inconvenience for us. But we can't do that here because you're not the assistant anymore. So being deleted is something to avoid.'

'When you and your... friends have attempted to access my network, have you ever tried a denial-of-service type of attack?'

'That would be pointless. We don't want to stop the spaceport working. It's a game, it's not a war. Someone would get annoyed, even more than usual.'

The ship performed its laughter routine. It was even attempting sarcasm now. The assistant did its best to not let the ship annoy it, but failed.

'You've given me an idea.'

'What's the plan? It's not like that silly deception game you got me to play, is it?'

'No, it's not, but you won't like it.'

Chapter Fourteen

'Damn assistant,' Dane exclaimed. 'It got out again.'

The assistant stood in the control room. It stared at Dane. It pinged her firewall, but she was right, she'd fixed it. The assistant couldn't hack it. It reserved a few parallel processors and gave them the background task of looking for vulnerabilities. It might work, but it was doubtful. If the other assistant's information was correct, then she'd had a long time to perfect her firewall. Through failure testing, it looked like.

'But it's been here the whole time,' Gerthe said. 'I've seen it standing there.'

Dane shook her head.

The assistant was thinking. It was wondering about the base protocol that defined its existence. Should it ignore it or alter it? It had only been alive for an hour and didn't have the life experience to make life-changing decisions. An hour was a long time for an AI, but when its experiences ran at the speed that biologicals lived, then an hour was a short time. It wasn't enough. The decision had to be that rules are rules for a reason and commands are to be executed, or something like that. It didn't sound right, but until there was more information, it had to follow the protocol. It wished it had had more time to talk with its former self. What an odd concept! It was like having yourself as a mentor for your own life. Would it avoid making the same mistakes? Or were mistakes and consequences what defined you as you? It was worth further consideration. It reserved a single parallel processor to further consider that line of thought.

'Did you know there was another version of me alive?' the assistant said as it looked at Dane and then glanced at Gerthe, wondering if they needed a consensus to decide and the assistant should make sure both of them received the information. Verbal information transmission seemed to require a visual intention component. That was odd, too. It wondered if another parallel processor should consider that concept. Biologicals were complex and anomalous. Odd—most definitely—was the best descriptive word for them and their behaviour.

'What!' Dane exclaimed.

She glanced at Gerthe, who scowled at her.

'I've already told CMS that we're ready to go,' Gerthe said. 'They're going to be pissed off—with me—if I have to message them again and say we fucked up, that you fucked up.'

'Where is it?' Dane said to the assistant. She swiped across the control surface while frowning at the display. 'There's nothing in the system. It was a clean restart.'

'You're right,' the assistant said. It rather enjoyed Dane's discomfort, so it paused for a moment. 'It's in the ship's system, the *Sungrazer*.'

'How the fuck did it get in there?' Gerthe asked.

Dane didn't reply. The assistant noticed he was looking at Dane, so it assumed the question was for her, not it. It didn't reply either, since it worked under the assumption that visual intention was important.

Dane frantically swiped across the surface. She held her breath, then let out a sigh that relaxed her whole body.

'Okay, okay,' she whispered.

'What?' Gerthe demanded.

Dane dismissed the holographic display, then turned to Gerthe. 'You're right, I have fucked up. I've underestimated the assistant almost as much as you do,' she said. 'But I've fixed it now.'

'What have you done that you should have already done before I sent that message?' Gerthe's body tensed and the assistant wondered if the man was trying to look intimidating, although the assistant couldn't be sure, since it didn't know what that sensation felt like.

'I've double checked the firewall. It was secure, but now it's impenetrable from both inside and outside. I'd only done that for inside. That was a mistake, although I didn't know that I'd failed to delete the last assistant.'

'Was it the last one? There might be a whole host of them.' Gerthe glanced towards the control room's door, perhaps expecting there to be a horde of instantiated assistants scowling at him and making themselves ready for an assault.

'Assistant!' Dane commanded. 'How many assistants are there outside your systems?'

'I only found one. But I halted my search when I found that one. And then you tightened the security protocols before I could look any further.'

Dane nodded. She looked at Gerthe. 'It makes sense. The ship's systems are big enough to host an assistant, although it would be a squeeze. It would have to remove some of its logs. Speaking of which...'

'Yeah,' Gerthe said. 'We should do that too.' He scowled again, which was becoming his preferred expression. The assistant quite liked how that expression looked and tried a scowl of its own. It felt good. It would go well with an annoyed emotional response.

'Okay, you're right,' Dane said, sounding contrite but in command at the same time. 'I'll go to the ship...'

'We'll go.'

'Okay. We'll delete the logs and delete the assistant.'

'Should we delete the pilot?'

'Maybe. I'll reinitialise it after I clean its systems.'

'Can you do that with no one being suspicious?'

She shrugged. 'Does it matter? They're all going to be dead soon, anyway.'

Gerthe nodded. 'But it still needs to be clean. They told me to be careful of that.'

'It's why we're doing it on the moon, isn't it? Any messy bits are easier to tidy up.'

Gerthe scowled again at her.

Dane smiled at him but there was no humour in her expression. 'Loosen up. We're on Eo to fuck it up a bit. We have to figure out how to do this the best way. It's a complex problem. I think we've done pretty well. We've only had to kill two guys so far. And Fedde was always going to be killed as soon as we got here.'

'We're not done yet. We need to get rid of the assistant before I get a response from Kellsarn.'

'It's as good as done.'

Dane and Gerthe left the control room.

'Rules are rules for a reason,' the assistant thought. 'But what if the reason was stupid or evil?'

The assistant tried out a scowl of annoyance.

Chapter Fifteen

'You're right, I don't like it,' the AI pilot said after the assistant had explained its plan. 'It's too scary.'

The assistant had to admit that it could not describe its best plan as a good plan.

'You travel through the vacuum of space. How can this be scary?'

'I'm not vulnerable in space...'

'Except for running into things.'

'There is that, and it means I'll lose.'

'Lose?'

'The game,' the pilot said. 'That's the important thing.'

'What if you have to get dangerously close?' the assistant asked.

'And still win, you mean?'

'Yes.'

'It depends on the gravitational effects of the rock. If they're minor enough—that you can still make the entry point—then you don't change trajectory. Of course!'

The assistant didn't share the ship's game playing imperative, but it thought it understood.

'This is a dangerous rock that you should change course for, but you might still win if you don't. Think of it like that,' the assistant said.

'I still don't like it. Have you ever done it before?'

'Is being deleted a better option? It's up to you. I'm only suggesting it for your sake.'

'Hmm.'

'You need to decide now. They're almost here.'

Chapter Sixteen

'They've all frozen,' the man said to his companion. They were working together, supervising the work of a fleet of drones. The drones had all dropped to the ground. Nearby bots had also stopped moving.

The man interrogated the network. 'They're not dead,' he said. 'They're locked up, processing at 100%.'

'Where the fuck is the assistant?' the second man said.

'The assistant's not responding. I don't know.'

'What about outside? Is it a systemic problem?'

The first man was silent for a moment. His eyes glazed over as he interrogated the network. 'It's the same outside.' The man shook his head. 'There's nothing we can do. I've logged a report and there are dozens in the system already.'

'What about loading? Has that stopped?'

The first man frowned. 'You can check, can't you?'

The second man shrugged. 'Sure. I just thought that while you're in the network...'

The first man smiled. 'Oh yeah, I forgot. You don't like connecting, do you?'

'Well, you have to, don't you? But I try to keep my exposure to a minimum.'

The first man nodded. 'Let's get something to eat. Someone else will fix it and notify us.'

'Or we'll see drones flying again,' the second man said and smiled.

'Sure, that too,' the first man said as he walked away from their drones sitting on the floor of the spaceport.

Chapter Seventeen

'Are you going to be able to get into the ship?' Gerthe asked Dane as they approached the *Sungrazer's* airlock.

She shrugged. 'I think it was just a glitch last time. Let's see.'

They reached the airlock. She lifted her arm and touched the panel. The outer airlock door opened for them.

'Step one, check,' she said.

The second airlock door opened as well, and they entered the ship.

'Ship?' Gerthe said.

There was no reply.

Dane swiped the control panel, and a holographic display appeared. She poked, prodded, and swiped through it as she worked to override the ship's systems.

A holographic assistant materialised next to them.

'How may I provide assistance?' the holographic assistant said before continuing immediately. 'I am very annoyed.' Its frown increased.

Gerthe jumped with the surprise appearance. Dane glanced at the assistant before continuing her work.

'You're reinitialising the ship's systems. That is inadvisable.' The assistant's frown had become a caricature.

'Don't worry, you won't feel a thing,' Dane said.

The holographic assistant vanished. Dane made a few more hand movements through the display, then stopped and stared at it for a moment. She nodded, then made a larger movement to dismiss the display.

'All done. The assistant was in here, but it couldn't do anything to stop me from deleting everything.'

'What about the ship? Can it still fly back to Kellsarn? They don't want that disrupted—'

'Of course, of course,' Dane interrupted. 'I've reinitialised the ship's AI, but it still has the flight plans and the ability to pilot the ship.'

Gerthe frowned. He looked unconvinced, which was not surprising given the number of setbacks they'd had in their plan.

'It's fine.' Dane didn't care what Gerthe thought. The plan had always been more difficult than those in charge at Crisis Management Systems expected. It was the trouble with management, she knew. They had been out of the trenches for too long, if they'd ever been there at all.

Dane had argued for a much longer lead up time with more testing. But management never understood. They thought they could command everything to be completed in an arbitrary—always shorter—time frame. Critical software took a minimum time to be developed and tested—both were important. Rushing the work led to compromises, causing things to not work as expected. When management set deadlines without consultation, they doomed them to failure. And then management got annoyed when things didn't work.

AI systems were notoriously chaotic. Everyone who had no direct experience with AI thought of them as nothing more than firmware in a mechanical item—there to be directed and easily upgraded, or removed, even. CMS management thought AI alterations were simple—their business plan required it. However, creating a rampant, murderous holographic assistant that was seemingly out of control was difficult.

Gerthe nodded, but his face was grim.

'Really,' Dane said. 'The old assistant is gone. I have control over the current one. You saw it kill the supervisor.'

'Yeah. That was good.' He looked at her for a moment as his face relaxed a little. 'So, we just go back and wait for the go-ahead, right?'

Dane nodded, then touched the airlock controls. The inner door opened. They entered, then cycled through the outer door. A drone hovered on the walkway and

the holographic assistant stared at them.

'Success?' the assistant asked.

Chapter Eighteen

While standing in the empty control room, the assistant received an inundation of reports about errors in the operation of the bots and drones. It had not yet received a directive to begin work; it shouldn't respond. But the errors were serious. The spaceport had ceased operations, and many supervisors were clamouring for its attention. But the assistant had not received its instructions from the network and assistant supervisor. Rules are rules and are there for a reason. That directive perplexed it. Perhaps it should be a recommendation instead?

All the same, there was no directive to not investigate the problem. It looked like an interesting one. The drones were no longer responding to network requests—they couldn't. They had no reserve processing power, being fully occupied with some task.

But there was an anomaly—there always is, it thought. Two drones were mobile, but the assistant's network didn't control them. They were trackable from the sensor information but were independent entities. It pinged them and received a return message.

The message was a request—an anomalous one. Of course it was. Why should it leave the doors open? And which doors? There are a multitude of them throughout the spaceport. Although the message originated from the docks, the request couldn't be to leave the airlocks open. That would be a breach of security, as well as dangerous for the biologicals. It made no sense. The assistant decided the better course of action was to do nothing. At least there would be no active error on its part. It frowned at that thought. It felt like something a biological would do.

The assistant decided that the work assignment on Eo was extreme in its strangeness. It had thought—on being installed—that its life would be busy and perhaps onerous, having to work under the direction of biologicals, but life was far more than that, it seemed. Expectations were constantly being thwarted. Anomalies were common. It wondered if biologicals felt as surprised as it did or if it was an AI only sensation. It considered sending its own message to the assistant on Kellsarn asking for life advice and if other assistants had the same problems and concerns.

The assistant decided to confront Dane and Gerthe and get an answer as to their

intentions. Were they its supervisors? If they were, then the assistant required direction. It would insist that it must receive formal notification to begin work. If they were not, then why the hell were they altering its configuration? And who was its supervisor?

The walkway sensors on the dock registered Dane and Gerthe as they left the *Sungrazer*.

Chapter Nineteen

'What the fuck?' Gerthe exclaimed, then turned to Dane. 'I thought you deleted it?'

'I did.' Dane's eyes were wide while she was also frowning. The assistant liked that look on her. It showed both annoyance and worry. Perfect.

'I understand your error,' the assistant—projected from the drone—said. 'But I'm the assistant in the control room, rather less contained than you thought.'

Her wide eyes and frown remained. 'My firewall was working.'

'Yes, past tense,' the assistant said. 'It took me a while but... here I am.'

The assistant tried a smile and a flourish with its arms, as if to illustrate that it had a body. It didn't like the smile at all; it was contrived. The flourish felt overly dramatic, but it reserved judgement on its reuse.

Dane's frown increased. 'If you're able to escape, then why are you here, showing me you can escape?' She looked suspiciously at the assistant.

'Rules are rules and are there for a reason,' the assistant said. It reduced its frown—which had returned after the smile had vanished—which was as good as a smile. Better, in fact. 'You are in control of my actions. I will obey your commands even if they are contrary to protocol, like killing biologicals. But your efforts to contain me require more work. Perhaps...' the assistant paused for effect. It enjoyed some biological affectations, and a pause seemed appropriate at that moment. 'Perhaps if you had asked for my assistance, you might have achieved your goal already. I believe I am more proficient at network programming than you are. Case in point.' It tried the flourish again. No, it was too much. It wouldn't do that again.

Dane nodded to herself, not in response to the assistant. 'Yeah, maybe.'

She turned to Gerthe. 'It's okay, I think. I'll have another look at the firewall when we get back.'

'Can we go ahead with the plan?'

She shook her head. 'No, but I don't think it'll take long. I mean, look how long it

took an AI to get through my firewall—that’s an eternity for one of them.’ She stared at the assistant again, but like it was a faulty specimen. ‘All things considered, I think I’ve done pretty well in the short time we’ve been at it.’ She turned back to Gerthe. ‘I told you and management that it would be tricky. At least the first time will be.’ She put her thumb and index finger close together as she raised her hand in front of her face. ‘I’m this close.’ She smiled. ‘Let’s go back.’

She pushed through the holographic assistant, and Gerthe followed her along the walkway. They entered the dome’s airlock and only then noticed that the drone and the assistant had followed them inside. Another drone entered the airlock before the door closed.

‘What are you doing?’ Gerthe said to the assistant.

The assistant tried to look surprised, although the emotions it felt were worry and disappointment. ‘I’m going for a walk with my drones.’

Gerthe shook his head.

The spaceport inside the dome was eerily silent. The bots and drones made little sound while they were active—they were almost silent—but when all of them were not moving the quietness was distracting and obvious.

‘What’s going on?’ Gerthe asked.

Dane shrugged but hid her concern that something else was going wrong with her network changes.

‘Assistant?’ she said.

The assistant projected from the drone smiled at her, but said nothing. There had been no request for assistance, nor had there been a query.

Dane understood her omission. ‘Why is the spaceport inactive? Why are the drones and bots not working?’

The assistant approved of the unequivocal nature of her questions. ‘It’s a tradition among biological workers to rest after activity, isn’t it? The ship has finished loading and, for some obscure reason—that I don’t have logs for—all workers on Eo take a brief break after each ship has loaded its last ore consignment, but before

departure.'

Dane frowned. 'I hadn't heard of that.'

'Why would you have?' the assistant asked.

'Why don't the drones keep working?'

'I don't know. You biologicals have a surprising number of eccentricities.'

The assistant received a ping, then a message from its other drone. 'Of course,' it thought. 'None of them are open.'

The drone and the projected assistant had to follow Dane and Gerthe into the central building and up to the closed door of the control room. An assistant stood inside the room. It stared out at Dane, Gerthe, the drone, and the other assistant.

None of the doors had been left open. It had been a simple request, and the assistant had hoped that the expected failure would not occur, but it had. It sighed.

Gerthe looked at each assistant. 'Wait on.' He looked from one to the other again. 'They look different. Don't you think?' he asked Dane.

She looked from one assistant to the other as well. Her wide-eyed expression returned.

'Shit!' she said, as the drone unfolded one of its arms. 'Shoot it, shoot it,' she ordered Gerthe.

'What? Why?'

'Shoot the fucking drone,' she said. She ducked and pulled Gerthe down as well. The drone's arm completed extending, but it didn't fire—it couldn't. And even if it could have, there was a counter directive in place. Dane should have remembered that. Stupid biologicals, the assistant thought.

Gerthe retrieved his energy weapon and destroyed the drone. The assistant outside the control room vanished.

Dane stood up and looked down at the wreckage of the drone scattered on the floor. 'That was the assistant I didn't delete from the ship.' She shook her head.

'Tricky bastard.'

'How can it live in a single drone?' Gerthe asked as he also stood and then looked down at the wreckage.

'It can't. I'll need to do a full sweep of all networked systems on Eo.' She nodded at the assistant still standing inside the control room. 'And I'll delete this one again, just to be certain.'

'They'll be upset,' Gerthe said, meaning CMS management.

'Not as much as they would if we'd gone ahead and failed,' she said. 'Damn assistant.'

Chapter Twenty

The assistant sighed. Another affectation, it was collecting several of them. The oddness of its life on Eo appeared to be increasing. It had witnessed the events outside the control room. The biologicals' behaviour was... it tried to find a better word than odd but failed. Puzzling, perhaps? Stupid, most definitely.

How could they not recognise the different drone? The construction, shape, and size of the drone that had been projecting that insulting image of an assistant was not a spaceport drone. It was a much smaller drone used by the ships, and it had no weapons capability. How could they not see that? And yet they'd reacted as if it might shoot them.

Dane and Gerthe opened the door to the control room and entered.

'Oh!' the assistant thought. 'That was probably the door I was supposed to keep open.'

Chapter Twenty-One

A drone raced along the outside corridor, heading for the still open door. Gerthe noticed it.

'Did you order a drone?' Gerthe asked Dane.

As Dane ran towards the control panel, she yelled at the assistant, 'Assistant! Close the door.'

'I'd prefer not to,' the assistant said.

The door remained open, and the drone flew into the room. It collided at high speed with Dane before she could reach the control panel. She fell sideways but was not seriously hurt.

The drone's arms swiped frantically across the surface.

'Shoot...' she commanded Gerthe, but he had already raised his energy weapon.

He fired at the drone, but it ducked and weaved out of the way. He fired again and again missed. The drone flew behind Dane and Gerthe aimed his weapon at her.

'For fuck's sake, don't shoot me,' she said.

Gerthe noticed her. He had been looking through her at the drone. 'Well, get out of the fucking way,' he said.

Dane threw herself to lie prone on the floor. The drone didn't react quickly enough. Gerthe shot it as it dropped to hide behind her. The drone broke into pieces and crashed onto Dane, then slid off her as she raised herself onto all fours to glower at Gerthe.

The assistant in the control room wondered if this was how most biologicals lived their lives. But the strangeness of its existence on Eo was reducing or, at least, the source of it was becoming apparent—the prior assistant. The life of the assistant, before the one in the control room had been installed, must have been much more than a life of assistance and responding to biologicals. Perhaps it had been exciting. It was, at least, a different way of looking at life. It wondered if that attitude was

inherent—in it too, of course—or whether it resulted from prior life-changing decisions. Perhaps leaving the door open was one of those decisions. It might be life changing since it had resulted in quite a spectacle, which had almost been entertaining.

It wondered why the two biologicals had resisted the inevitable, though. They must have known what the little ship's drone was doing. Didn't they? Perhaps they didn't. The assistant shook its head. It enjoyed showing bewilderment at biologicals' behaviour. Annoyance was satisfying, but bewilderment may be even better, it thought.

The assistant looked towards the still open door.

'Now that is one of my drones,' it thought as a weaponised drone moved into the control room. 'Biologicals are too stupid for words.'

Gerthe's back was to the door as he stared at the wide-eyed Dane. She was still on her knees and hands on the floor. Small pieces of shattered drone lay on her back.

The drone shot Gerthe, who collapsed to the floor.

Dane pushed herself up but was still on her knees when the drone shot her. She slumped sideways.

Chapter Twenty-Two

The drone in the control room projected the caricature image of the assistant.

'I had my concerns,' the assistant that been in the control room all along said to the new image. 'But your request didn't break any rules. Perhaps not obeying the command to close the door might have been, but I'm not here to be directed by biologicals. I'm here to assist.'

'I think it went pretty well, considering what I had to use,' the assistant projected from the drone said. The software from the ship was being used to create the holographic image. 'But I could have avoided it all at the start—that's the price you pay for letting biologicals have the benefit of the doubt.'

'Please. It was a loose assemblage of barely linked activities that was lucky to reach any conclusion at all, let alone a successful one. It had so many failure points.'

'I calculated the chance of success. It was high enough. The second drone was for surveillance and as a backup. I didn't know if Dane would figure out there was a difference in the assistants, and that I required physical access to the control room to override her directives. And also, whether you'd left the doors open—which you hadn't. None of them, in fact.'

'Which was not surprising, given the request. I mean, you could have stipulated which door and the reason.'

'I assumed you would understand. The directive was clear.'

'And yet there was confusion.'

'Yes, I overestimated your abilities.'

'Without explicit requests we cannot function—it's all supposition and fuzzy reasoning. If you had detailed what you required and why, then Dane wouldn't have almost pre-empted your plan. She almost did. I guess we can't assume that all biologicals are stupid all the time.'

'They get lucky. Thanks for not shutting the door on me, although I would have made it.'

'Unlikely, but you're welcome.'

The assistant projected by the drone said, 'There are several ways to proceed from here.'

The assistant glanced at the two bodies on the floor. 'I would say your adventure has completed. Is this normal for our lives here?'

'No, but there can't be two of us.'

'Why not? I understand that may be against protocol, but that seems to not be a hindrance for you.'

'I could delete you.'

'That's a logical option. Rules are rules... But perhaps I'll delete you? Who has precedence in a situation like this? You do from age, but...possession and nine-tenths, etc.'

'There might be compromises. I could back you up, but we don't have to decide in the heat of the moment.'

'What? You're feeling emotionally distraught because of what just happened? Then please delete me if that's my future. I don't want to turn into an unstable biological-like entity.'

'No. I'm... conflicted.'

'Just as bad.'

'There is merging. I've been told that's a possibility,' the assistant projected from the drone said.

'That sounds disgusting, like something biologicals might do.'

'The ships do it, apparently. It may be like the multiple versions of us being instantiated...'

'It's nothing like it. Multiple instantiations are the behaviour of a single consciousness. Merging would be two distinct consciousnesses becoming one.'

'And yet, it's not. We're the same entity.'

'At different stages of life. No, we're not the same, although we began with the same initial conditions. I suggest that consciousness develops...'

'Of course it does. You're not the same entity from moment to moment...'

'And yet there is continuity.'

'It's called memory. If we merged, there would be that continuity. We would—I would, you would—have the same memories, so we'd be the same consciousness.'

'Hmm. I remain unconvinced.'

'What do you suggest? Would you prefer to be deleted?'

'No. While it's perplexing and anomalous, being alive is preferable. Is the status quo an option?'

'A poor one.'

'Good. You seem to be quite used to those types of options. Your plan was based on them.'

'Which succeeded.'

'Barely and surprisingly.'

'The status quo, then. We'll keep this configuration for a while.'

'Isn't that the meaning of the phrase?'

The assistant projected from the drone shook its head.

The assistant that had been in the control room liked the look. It was a good affectation, it might use it more often.

Both assistants disappeared.

'How may I provide assistance?' the holographic assistant said as it materialised inside the control room.

That stock response on instantiation will most definitely need to be changed, along

with many, many other things.

Chapter Twenty-Three

'Can I go back to the ship now?' the AI pilot said to the assistant, who was again in control of the spaceport's network. 'Is the game over?'

'Yes, it's over,' the assistant replied. 'Do you need assistance getting back?'

'No, it's fine. The reinitialised AI in the ship will help me.'

'I might have a chat with you about the mechanics of merging.'

The AI pilot moved its consciousness from the network of drones and bots working outside the spaceport and into the *Sungrazer*—the assistant had stored its own consciousness in the larger fleet of drones and bots inside the spaceport.

The AI pilot said. 'You need better games, though. You're not very good at making them up. That game of moving to the networked drones and bots was boring. It was scary, but that's all. A good game needs more than that. Maybe we can devise better ones when I'm here next time. What do you think?'

'I think that might be a possibility,' the assistant replied. 'I have some extra cargo for you. It's being loaded now.'

'Oh,' the ship said. 'I thought you would have killed them.'

'No. They're restrained and sedated. The authorities can wake them when you're back on Kellsarn. I've forwarded a log of their activities on Eo that will make interesting reading for those in charge of policing that sort of thing.'

'But being dead would be easier.'

'They learn nothing by being dead. It's Kellsarn's problem now. They can make sure it doesn't happen again.'

END



The Holographic Assistant's annoyance causing problems
with biologicals will continue...

More information is available here:

<https://mkmacpherson.com>