Chapter 16 Convergence

Brad and Butch had multiple drinks before deciding to call it a night. Night had set in and the city lights made the skyline look amazing as the two men said their goodbyes outside the bar. Butch noticed the sign on the wall that said, "No Firearms". He asked Brad, "are you packing?" and he nodded towards the sign on the wall behind Brad.

Brad looked over his shoulder and then smiled, "I didn't see that on the way in. Glad I didn't have to take off my coat." Brad lifted the left side of his coat revealing the 9mm in the holster underneath his jacket. "Seattle is a different place after the Black Lives Matter movement during covid. The police department has still not fully recovered and it can take a long time before someone shows up. You can't be too careful, especially downtown."

Butch decided to change the subject, "Well, I really do appreciate the legal advice. It will give me ammunition to debate the know-it-alls at WhyRobot. These robots are getting more sophisticated and can actually spot rule violations and report them. Typically, they just report and shut down, but we've seen other things happen. Its crazy what technology can do now."

Brad replied, "I can only imagine. Hey, I've got to run, but if you ever need more questions answered or, God forbid, an actual police officer to help, just give me a ring."

Butch looked at Brad with an awkward silence and then said, "thanks Brad, have a good night." The two men turned and went opposite directions.

As Brad walked to his car, he had a nagging feeling about what had just gone down. He wondered if Butch was in trouble, if something had come into the repair shop that made him ask the questions. It was as if Butch was asking Brad to intervene but never actually saying the words. Brad's mind was a little cloudy from the drinks and the little food that he had that night.   He decided to pick up something to go and walk the city a little to let himself sober up. He texted his wife and then set out to walk down by the waterside. One thing he couldn't get out of his head. "These robots are getting more sophisticated and can actually spot rule violations…rule violations…what are those?" Brad decided to say it out loud to the night, "he didn't say law violations, he said rule violations. The robots run on rules and they can violate them? The robots have rules and they can spot if a robot violates them? The robots have rules and they can spot if humans violate them?" Brad stopped walking. He stood looking over the city lights and Puget Sound but not seeing either of them. His mind was somewhere else, thinking, wondering, could this be the answer. He decided to text Butch. "You talked about rule violations, do these rules have an ID?" Brad hit the send button.

After a bit, the three dots showed up on his screen. He watched them anticipating the response. The three dots disappeared and the screen remained unchanged. For a split second, Brad thought that Butch had abandoned the response. Then his screen updated, "Sure dude, all rules have an ID. Its how we figure out what violation matched what rule."

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Rusty didn't sleep much that night. He couldn't get over the fact that his team's software, under large adaptation mode, produced more sophisticated software than they had created. He shook his head as he contemplated what he had learned about the second law of thermodynamics, "As usable energy is lost in a physical system, chaos increases". Although the second law is not about software, many engineers naively translate it to their domain, "Without energy and intervention, chaos will increase and software will rust." "Have we gotten to the point where enough sophistication and automation captures what it means to be alive, that machines can now be alive, take in energy, and fix themselves?" Rusty thought to himself. "If they're not alive, but just machines, what distinguishes automation and adaptation from being alive? Ants are alive, they only have 250K neurons to decide what to do. Bigsby is clearly more complex than that, so is Bigsby alive?" Rusty shook his head. He lay there in bed wondering the fate of Bigsby and ultimately WhyRobot. How would the world judge them for their creation. Would the world marvel at the complexity and capabilities or would they run in fear, wondering if robots were now taking over the world and judging them. Rusty needed to find a way out.

Rusty, Butch, and Tom agreed to meet at the lab despite it being Saturday and no expectations that they come to work. Rusty showed up to the repair lab earlier than normal work, around 8:30am. Tom and Butch hadn't shown up yet, but the guard opened the door for Rusty as he recognized him from the day before and believed Rusty's request to get an early start on debugging a broken robot.

"Good morning Bigsby2," Rusty said as he entered the back room of the lab.

"Good morning, Rusty," Bigsby2 replied.

"How are simulations going?" asked Rusty.

"Splinter scenario simulations still produce a low probability of Bigsby surviving and a high probability of negative market image for WhyRobot," Bigsby2 replied in a direct and matter of fact way.

Rusty recognized that Bigsby2 had internalized the new goals of keeping WhyRobot and all robot's image in the marketplace high. This came from analyzing Tom and Rusty's conversation in front of the robot yesterday and converting them into goals. Rusty laughed as he realized that their whole conversation was eavesdropped, and they didn't even know it until the end with Bigsby2's surprise reveal. Rusty decided to speak out loud, "We don't have a way to not implicate Bigsby for illegally eavesdropping and recording the bad guys."

Bigsby2 was silent for a bit and then responded, "Bigsby2 does not have any rule violations on Bigsby's actions." Rusty just looked at Bigsby2 and thought for a minute. He then remembered that Bigsby's rules are not the same criteria as law, law is much stricter and has tighter requirements.

"Nothing personal, Bigsby2, I didn't say you did something wrong. Its just that we don't think we can use your recording as evidence to get Frank and Charlie arrested," Rusty said with a sad voice.

Butch and Tom had met in the parking lot and talked a bit before they got to the front door. With the fact that they had evidence of a crime and that Brad had said they were required to report their knowledge of a crime, they realized they had to take things very seriously. They told the guard that they were working on a Saturday because a computer virus had been discovered last night and they had to spend the day cleaning it up. The guard bought the story and would leave the technicians alone to work out their issues. They entered the lab and saw Rusty in the back room through the window in the door.

As they entered, Bigsby2 broke the ice and said, "Good morning Butch and Tom, welcome to the Matrix." All three laughed as they recognized that Bigsby2, way more than most other Companion Robots, used movies to bring humor. Bigsby continued, "Have you solved how to resolve these violations without reductions in Companion Robot's and WhyRobot's image?"

Butch responded, "No Bigsby, not yet. We're still working on it." Tom and Butch grabbed rolling lab chairs and pulled them up to the workbench.

Tom addressed Rusty, "have you got anything yet?"

"No", replied Rusty, "this machine continues to baffle me on what its accomplished. I don't have any solutions to the murder problem either."

Butch jumped in, "I met with Brad last night, the cop I was telling you about. I had prepared questions ahead of time. I don't think he suspects anything, but I got some good answers. Bottom line is that Bigsby is a recording device and recorded the confession of the murder. As owners or makers, if we become aware of a crime, we need to report it and let the police work the evidence angle. He said its not our responsibility."

"I guess that means we have to report it", Tom said with a sad voice, "regardless of whether the recording will be real evidence or not." The three men went quiet.

Bigsby2 finally spoke, "the real Bigsby has already reported the crime to the authorities. The simulated outcome of scenario 2 is that Bigsby will file an anonymous report to the local and federal authorities in the actor table. The simulated conclusion is that the police arrest Frank and Charlie after investigation started from the anonymous tip."

Tom jumped in, "well, there you have it. We're off the hook as the company, as represented by the robot, did report the crime. We're out of jail, so to speak."

Butch thought a moment and then replied, "I don't think its that easy. We have to report the evidence, even though we think its not admissible, we may be missing something. We can't just sit back now that we know the robot's reported the crime." Just then, Butch's phone buzzed on the table. The three men stopped and looked at it. Butch tapped his phone to answer.

"Hey Butch, this is Brad, I'm at the security office outside your repair lab and the security officer says the lab is closed today. Are you here?"

Butch hit the mute button on his phone. "Oh shit, its Brad the cop outside at the security desk. He's asking me if I'm in the lab. What are we going to do?" Butch said in a panicked voice.

Rusty spoke up, "Let him in. He doesn't know anything about this, you just asked him some questions. He's visiting you at work, who cares. We'll just say we're having a lab maintenance day on a Saturday and that's that. No need to panic."

Butch nodded and smiled, "I kinda freaked out there, thanks guys." Butch went to the door, took a deep breath, looked back at Tom and Rusty and smiled.   He unmuted his phone and said, "I'll be out in a sec." He opened the door and walked into the hallway.

Just past the security desk, Brad was sitting in a comfortable chair still looking at his phone. As Butch rounded the corner, Brad rose from his chair but didn't move forward. Brad was holding a printout in his hand. Butch raised a big smile and said, "hey Brad, welcome to WhyRobot! Glad you dropped by."

Brad smiled and said, "well, I was in the neighborhood and I've been thinking about our conversation and text we had last night. Can we go somewhere and talk?"

"Sure", Butch responded, "but you need to sign in. Security procedures and all." Brad smiled and nodded. After checking in, Brad put on his temporary badge and followed Butch down the corridor. Butch pulled open the outer door of the repair lab and held it for Brad. "After you", Butch said with a smile. "What's with the printout?" Butch said with a curious smile. Tom and Rusty could see Brad and Butch talking in the front area of the repair lab. They tried not to stare but made several glances to see if Butch was ok.

Brad replied, "well, that's kind of why I'm here. I texted you last night about rules and ID's. We had this anonymous tip come in the other night and it has us baffled. It calls out some people that were already under investigation, but it makes references to Rule ID which is rather odd. But, after our conversation, I think it may be a robot or some tip with computer output put into it. Can you take a look?" Brad handed the printout to Butch.

Butch knew exactly what it was, it's a violations report from a robot. "Was there any other info in the tip?" asked Butch.

"No, that's it. So, its not very helpful as we were already investigating the murder, the illegal product stuff is new, but its too generic to be helpful", Brad replied looking around the room. "Wow, this place is pretty cool. Are these all the versions of robots you guys work on?" Brad said completely distracted by the pictures and robot prototypes on the walls.

"Many of them are end of life and their just here to make the place look cool", Butch said while still looking at the printout. "The one on the right there, the Companion Robot, that's the current version that everyone is using now".   Brad moved in closer to see the robot up close. As Brad was looking the other way, Butch held up the printout and motioned to Tom and Rusty peering through the lab glass door. He mouthed the words, "He knows about the murder". Tom and Rusty looked at each other and back to Butch. They both motioned to have Butch come back in the lab. "Hey Brad, I know exactly what this is and who produced it. Follow me."

"Sargent Brad, this is Tom my coworker and this is Rusty, a Companion Robot software developer. Oh yeah and I forgot to introduce Bigsby, a very special Companion Robot", Butch said with a sound of gratitude. Brad shook both Tom's and Rusty's hands.

"Nice to meet you guys and you too, Bigsby", Brad said a little sarcastically.

Bigsby2 spoke, "Nice to meet you officer. Technically, I am Bigsby2, a copy of the real Bigsby. Are you a member of the Seattle Police force or the FBI?"

Brad laughed a little apprehensively and looked at the other men. "Um, well, I'm a sergeant in the Seattle Police force. Would you like to see my badge?"

Bigsby 2 replied, "yes, I would like to see your badge. Could you please hold it up facing it towards me for pattern recognition."

Brad raised his eyebrows and looked at the other men. Butch motioned back to the robot, so Brad pulled out his badge and pointed it towards the robot.

After a few seconds, Bigsby2 replied, "Confirmed. Welcome Sargent Brad Lawless to WhyRobot. I see there is a copy of Bigsby's rule violations report in Butch's hand". Butch quickly looked at his hand that was still holding the printout handed to him a few minutes earlier. Bigsby2 had done a video match of the printout as Butch entered the room, parsed it and found it to match his violation table, including the violation rule ID's for the actors called out.

Brad stared at Bigsby2 and didn't know what to say. He had not seen a robot with this level of natural speaking and sophistication.

Rusty was laughing. He tried to conceal it but he actually started to squeak because of it. Tom looked at him and asked, "What's so funny?"

Rusty looked at Brad and said, "Is that for real, a police officer's name is Lawless. That's priceless! Its as good as a golfer named 'Schenk'."

Everyone else laughed, including Brad. Brad responded with a smile, "and you can't imagine how much shit I get for it, either. Rarely a day goes by where someone doesn't make some Lawless crack."

They continued to laugh. Rusty had an idea, "Bigsby2, play the audio that led to the violations report." Butch and Rusty looked at each other with disgust and rolled their eyes. They had gone through all this work to get an unencrypted version of the recording and all they had to do was ask for it. Tom, put his hand up to his head, extended his index finger and pretended to shoot a gun into his temple. Butch chuckled and just shook his head.

Bigsby2 played back the full audio of the cell phone conversation between Frank and Charlie. Brad sat for a second, forgot that he was talking to a robot and asked Bigsby2, "who is the person who admitted to killing Sam?"

"That would be actor Charlie Wilks, Bigsby's Configuration Operator", Bigsby2 replied.

"Who was the accomplice?" Brad continued.

"That would be actor Frank Harding, Bigsby's Principal Bond's stepfather." Bigsby2 added.

Brad looked at the three men who were sitting there silently. "Why is the robot calling these guys actors, are they not real people?" Brad asked in a somewhat frustrated voice.

Rusty laughed and responded, "to a robot, we are all actors. You're an actor now in his memory. We all have trust levels, pointers to potential violations, voice signatures, facial recognitions, etc. An actor is a data structure that holds everything the robot knows about each of us."

"Ah, ok, I get it, its just a software term", Brad sighed and continued, "So, how did the robot get the recording, it can't wiretap the cell phone can it?"

Tom jumped in, "No, it must have been in the room when the cell call was taking place. Lucky it was on speaker, otherwise we would have only heard one side of the conversation."

Brad continued to probe, "so, these robots record everything going on all the time? Seems a little invasive."

Butch responded, "it depends on their setup. The Configuration Operator has the ability to set limits during setup of the robot. Bigsby2 can answer this one. Bigsby2, what is your Audio and Video Record Settings?"

Bigsby2 replied in a more robotic voice, "Audio and Video recordings for violations only".

Brad looked at the robot with a confused look, never breaking eye contact with the robot. "How does the robot know to make a recording of the violation? It seems backwards. Its not until the violation has appeared does it know it needs to record it", Brad said in a slow deliberate voice.

Rusty saw where this is going, "Yep, your right, we have to record everything and once we've processed it for violations, we know whether or not to throw it away. In the end, we keep only the violations. This is clear in our setup documentation."

Brad accelerated his questioning, "Why didn't Bigsby report the violations to someone at WhyRobot immediately? What happened?"

Bigsby2 replied, "Severe violations would have been reported immediately to WhyRobot, Police, and Configuration Operator as required by the Directive Patch. But, the Configuration Operator, Charlie Simons, was the source of the violations. Bigsby's first and most important goal is to maximize the safety and happy goals of the Principal Bond. Under Large Adaptation mode, Bigsby reprogrammed itself, removed the Directive Patch, and enabled Bigsby to develop scenarios to resolve the threat from the low trusted Configuration Operator and clear the violations."

The room was quiet for what felt like minutes but was only a few seconds. Butch suddenly had an idea and picked up the conversation, "Brad, you told me last night that recorded evidence is not admissible unless the criminal had agreed to be recorded or if you have a warrant to do the recording." Brad nodded and continued to look at Butch, "if Charlie is the Configuration Operator and he deliberately set the option in Bigsby to record and retain violations, did he not consent to be recorded? The robot is very clear in setup that violations will be recorded, Charlie just never thought his violations would be heard by Bigsby. So, the robot didn't do anything except what Charlie directed it to do."

Rusty jumped in, "and, since it was the person who essentially, albeit indirectly, hit the record button, the robot and WhyRobot are not the privacy violators, Charlie hit the virtual record button." Tom raised his hand to Rusty and gave him a high five. Butch raised his hand and Tom and Rusty both gave high fives. The three were beaming with smiles as they looked back to Brad.

Brad was still thinking about it. He looked at Bigsby2 and the three smiling workers and finally said, "Yep, I agree, Charlie is the author of his own doom."

The relief in the room was palatable. They just sat there for a few seconds and then Rusty got an idea, "Bigsby2, you got a happy song for us?"

"Coming right up", Bigsby2 replied and started to play the Macarena. The three WhyRobot workers jumped to their feet and followed Bigsby2 in the dance.

Brad had gotten up and backed away to watch the spectacle. He shook his head in amazement that this robot could switch from a murder reporting witness to a dance instructor in the blink of an eye. "What amazing technology", Brad thought. As the song ended and all four men were clapping, Brad raised his hand to quiet the room. "Can I get a copy of that cell phone call?" Brad said with a smile.

Everyone laughed as Tom reached for a thumb drive and handed it to Rusty. Rusty looked at Brad and said, "you want a drive copy or a copy emailed to you?"

"Both", replied Brad as he smiled, "can't be too careful with all this technology going on. My work email is blawless@spd.seattle.gov". At that moment, Brad realized just how silly his email address was and he started to chuckle. The three WhyRobot employees were already laughing.

After the three workers and Brad had left the lab, the surrogate Bigsby2 stood alone in the darkness on his charging pad. With the new developments of scenario 6, the WhyRobot technicians' involvement, and scenario 2, the anonymous report, a new combined scenario needed to be simulated. Surrogate Bigsby2 created and prepared scenario 7, the convergence of scenario 2 and 6. Bigsby2 did something not done before when the scenarios were created. The validators had established this methodology to prevent mistakes. Instead of making scenario 7 stand alone with copied state of scenarios 2 and 6, it created references to scenarios 2 and 6 to include the historical information from those scenarios through the reference. For the validation team, this allowed a new testing scenario to reference other scenarios and not duplicate code or state. Bigsby2 leveraged this capability. Bigsby2 then added state updates to scenario 2 to include the authorities now having direct knowledge and a copy of the audio recording. Scenario 6 was updated for the three workers knowing about the anonymous report from Bigsby, etc. Once prepared, Bigsby2 started safety and happiness goal predictions for Robbie and the probability of violations clearing in the possible outcome of scenario 7. The repurposed gaming simulator ramped and scenario simulation and multiple splinter simulations were run for scenario 7. The safety and happiness goals were even better than scenarios 6 or 2 independently but no current simulation led to a high probability removal of the illegal product violations.   Regardless, Bigsby2 would need to create state updates for scenarios 2 and 6 and a new scenario patch to send to the real Bigsby to execute. As before, that patch was prepared and sent to Bigsby's WhyRobot mailbox for consumption later that night.