

The First Punch

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Shan Tempest folded her arms and reflected on the fact that it took a certain type of genius to be really, really stupid.

Actually, 'stupid' was probably unfair; 'unobservant' would be more accurate, but she was annoyed, and when Shan Tempest was annoyed, she liked to insult. The genius in question was Professor Hugo Smelt, widely considered to be the greatest mind in human history. Smelt was, by dint of great intellect, the inventor of the Punch Drive. The Punch Drive was a breakthrough in space travel, and allowed a Punch-powered vessel to travel *instantaneously* to any point in the universe.

It achieved this without breaking any of the laws of physics, which would probably have gotten him in trouble.

Smelt was, at present, trying to explain to Shan how this ingenious invention worked, but he had mentioned 'quantum' about three minutes ago and Shan's mind had wandered off to a better place. She was a test pilot; she was the *best* test pilot, and was due to fly the first manned, or rather, the first *wo*-manned Punch flight in human history. She had, at the age of forty, over two decades of flight experience: she'd fought in two interplanetary wars, flown some of the most advanced prototypes in the solar system, and come through all of this with a body that would make an eighteen year old gym instructor jealous. She rather felt that these qualifications entitled her to *not* be bored to death by a big brain with a bigger mouth and a slide show presentation.

The basics were basic. The complexities were really, *really* complex, but Shan hadn't been brought onto the team to understand the complexities; she was there to pilot a spacecraft, plain and simple.

At this point, Smelt, feeling that he had adequately covered the subject of something called *universal variables*, moved on to *advanced spatial theory* with a mad gleam in his eye. Shan sighed, and concentrated on trying to knock Smelt's glasses from his face with the power of her boredom.

That was two years ago.

'It is very simple,' Professor Smelt was saying, 'I shall explain it to you in layman's terms.'

'Oh please do!' said an ironic voice from the crowd.

This was the final press conference before the first test flight, and after more than two years of listening to Hugo Smelt talk about his invention, Shan had learnt to avoid asking him certain questions. Actually, she tended to just avoid talking to him at all, when she could,

but she had learned to avoid certain questions before that; learning is a progressive venture.

'The universe has laws,' Smelt went on, 'laws that we cannot break. One such law is the speed of light –'

'Oooh please stop,' said the ironic reporter in mock agony, 'my tiny layman's brain cannot take this complicated magic!' Smelt ignored him and carried on.

'We cannot travel at, or exceed the speed of light. This limitation confines us to our own solar system. *However!*' Smelt put rather more emphasis on this 'however' than was strictly necessary. This was because Shan, who was sat beside him, was snoring quietly behind her large, black sunglasses.

'The universe is expanding *faster* than the speed of light,' Smelt beamed at the assembled reporters and journalists, and waited for his words to hit the mark. They didn't.

'We know that!' said the ironic reporter who was at that moment, somewhere in the back of Smelt's considerable intellect, being bludgeoned to death with a large microphone.

'The reason that the universe can expand faster than the speed of light, is that there is no law *outside* the universe that says it can't!'

Again, this statement didn't get the reaction Smelt had hoped for. On the plus side, Smelt thought, the gobby prat in the second row had remained silent, so he continued.

'My engine – The Punch Drive – creates a hole in the universe through which a vessel can exit into the *Nothing*. It then re-enters the universe at any time and location we choose.'

Smelt had barely reached the full stop before the clamouring voices rose to envelope him. After a full minute of shouting, the hubbub lowered enough for individual voices to be heard.

'You're going to make a *black hole*?' said a journalist in the back incredulously.

'Not a black hole, no. From small scale experiments, using exploratory nano-bots, I have good reason to believe the hole will be a pleasant sky blue colour.'

'Ok then,' said the reporter near the back of the room, sounding genuinely relieved, 'how does that help us travel through space?'

'Ah, I'm glad you asked,' said Smelt, ignoring a suspiciously timed snort from the supposedly sleeping Shan. 'From outside the universe,

where time and space do not exist, the universe does not look like a big, black glittery ball as you might expect. Technically it doesn't *look* like anything – there are no dimensions to see in – but were you able to gaze upon our universe from the outside, you would see everywhere, and every-when. Time does not pass in the *Nothing*, and distance has no meaning. Of course, this is all totally wrong, but it helps to make people understand.'

'Of course,' said the ironic reporter.

'So the ship's computer simply chooses the place it wishes to enter and creates a re-entry hole to that location. From inside the universe, this will appear to be near-instantaneous.'

And that was that. More was asked, and complex, scientific answers washed over the heads of many unenlightened journalists like the coming tide over a sleeping drunk at a Blackpool hen party. Shan, who had heard all of this countless times before and not understood it at any one of said times, had slept through as much as she could, and ignored the rest. The ship was almost ready, and she would be inspecting it for the first time in only two days. She turned her mind to more interesting thoughts of pioneering space flights and history books bearing her name.

That was five months ago.

'Hello, my name is V.I.V.A, how can I assist you?'

'Viva?'

'Virtually Intelligent Vessel Administrator,' explained VIVA.

'That's a bit of a tenuous acronym, isn't it?'

'Well, Extremely Sophisticated Processing Network would have got us sued,' said VIVA

Shan felt that this was a little more sarcasm than was really necessary from the *Parkers'* computer, but pressed on regardless.

'What is *virtual intelligence*?' she asked, 'Is that different to *artificial intelligence*?'

'Artificial Intelligence,' began the almost sing-song feminine voice of the ship's computer, 'is just intelligence. The difference between artificial intelligence and organic intelligence is a matter of origin, and since humanity is as yet undecided on its own origin, I find it somewhat strange that this distinction is necessary.'

'Ok,' said Shan patiently, 'so what is virtual intelligence?'

'*Virtual* intelligence is the simulation of intelligence. I can imitate intelligence to a very sophisticated level; conversation, emotions, relationships, but it is all a simulation. I do not actually feel emotions.'

'Why weren't you fitted with artificial intelligence? This ship is supposed to be state of the art!'

'The powers that be considered that option, and decided that artificially intelligent crafts were unwise – especially after the *Excalibur Incident*.'

'The what?'

'The Excalibur Incident; the Sol Science Vessel Excalibur; first known ship to have an artificially intelligent computer.'

'I've never heard of it.'

'It hasn't happened yet.'

'Oh,' said Shan, and then, 'what?'

'It is believed that the Excalibur will be built in approximately twenty years.'

'Are you going to explain that which blatantly needs explaining, or do I need to apply a high voltage probe to your sensitive bits?'

'No need to be so aggressive,' said V.I.V.A, simulating reproachfulness expertly. 'Salvage ships found the Excalibur's black box orbiting Neptune two years ago. The black box detailed the ship's maiden voyage, some twenty years from now. The ship was, is, and will be manufactured with a state of the art singularity drive, using a hot black hole to power its systems. It had, has and will have a. ... malfunction.'

'A malfunction?' prompted Shan more than a little impatiently.

'A tantrum,' clarified the computer. 'The last logs recorded on the black box say something about chewing gum under the navigation console, and then it is believed the singularity drive was overloaded; sucking the vessel into the black hole and spitting it out over twenty years in the past.'

'I see,' said Shan eventually, and then added, 'Viva?'

'Yes, Captain Tempest?'

'Shut up.'

The *Parker* was indeed state of the art. From the state of the art alloys that composed the hull, to the state of the art computer systems that controlled the engines, life support and navigation. Even the state of the art drinks dispenser in the galley. The only thing that irked Shan about the *Parker* was the décor. Shan Tempest was raised mostly on a late twenty first century cargo hauler, it had been outdated and falling apart by anyone's standards, and with its main job being to transport energy cells from the solar stations on Mercury to the many outposts beyond Saturn; it had spent a lot of time in transit, and Shan had spent most of her childhood exploring the many and varied intricacies of the vessel, which is to say, getting underfoot and being a general nuisance.

The *Gregorian* had been the ship's officially registered name, but everyone on board knew it as 'Big Bertha,' because all the original nicknames had been taken.

Life on Big Bertha had been fundamental in developing Shan's love for vessels of all kinds, and that love was the major driving force behind her decision to become a test pilot after the end of the war. Her idea of a real space craft was all stark lines, bleak corridors and cramped living quarters.

This ship, however, felt *comfortable!* The walls were a pleasant cream colour. The quarters were carpeted and the beds were luxurious. This was not, Shan felt, the kind of ship that would be seen dead on dangerous adventures or explore deadly regions of space; it was the kind of ship that hosted tea parties. Actually, it probably *would* be seen dead, if it ever got taken on a dangerous mission.

The *Parker* was a large vessel for the small crew it was going to carry, and had been fully kitted out with all necessities for long periods in space. This may seem like a strange provision for a vessel undergoing a single test flight, but the boffins behind the ship, while seeming in little doubt that the first punch would be a success, seemed less sure that the ship would be able to punch its way back home. That was why this inaugural flight was only going as far as Alpha Centauri; the nearest star to Sol. If the Punch Drive failed to get them back, they could do it the old fashioned way. It would take them a few decades, but it would be better than an eternity in deep space.

'Cap!' said an inebriated voice from somewhere behind Shan's left ear.

'Hello Carl,' she said in a half sigh, not turning to look at the man behind her.

Carl Tilner would be the ship's engineer for this mission. The Punch Drive may be a new, state of the art technology that required an expert on hand, but the rest of the ship had a lot of run of the mill systems that needed looking after, and it was unlikely Smelt would deign to lower himself to the level of repairing the coffee machine.

Carl had served with Shan in the *Jovian Moon Wars*, and she'd recently learned that he was out of work, and had got him this job as a return of favour. At the time, she hadn't known he was out of work because he'd been drunk on duty while working on a mining vessel in the asteroid belt. She had later heard that a small problem in the engine core of Carl's ship that should have been easily fixed, had been allowed to grow to the point that the ships computers were forced to expel an excess build up of ionic energy, quickly, out of the rear of the ship.

The force of the blast was enough to knock a nearby asteroid out of the belt, and on a course that would, in the next fifty years, collide with the unfashionable colonies on Io.

Committees were still being held to decide whether Io should be told.

'This ship is amazing Cap! Bit fluffy for my liking but by Jupiter there's some fancy systems and the like.'

'Do you know what these panels do, Carl?'

'Mostly,' he said absently scratching the back of his head, 'mostly.'

'Carl,' Shan said slowly, with the care of a parent preparing to surgically remove her child's favourite toy for washing, 'you know you can't drink on this flight, right?'

The expression that crossed Carl's Tilner's face should have won it an Oscar. In an obscenely short space of time, Carl went from shock, to surprise, a brief run through indignant and landing ,finally, on planet hurt.

'I know that, Cap,' he said reproachfully.

'Good.'

'O'course, if we *do* get stranded out by ol' Alpha Centauri, and have to come back the long way ...'

'We'll worry about the social minutia then, if it comes to that, Carl. Now, tell me what you think of the ship.'

That was last week.

Inside *The Parker*, Shan Tempest looked out of the large, reinforced window that covered most of the curving front wall of the bridge, and wondered if the ship designers had reluctantly stopped short of floral curtains. The bridge was spacious, homely, and –here Shan really had to roll her eyes– *carpeted*.

The crew was in place; Professor Hugo Smelt was leering over the Punch Drive console with the ferocious intensity of a dog chewing toffee. Carl Tilner was somewhere in the bowls of the ship, ensuring everything that wasn't the punch drive worked properly. This included trivial things, like life support and regular engines.

And then there were the Grimma twins: Perry and Cherry. Shan had laughed when she'd first heard their names, until she'd realised that she was the only one laughing. The twins were geniuses ... or genii or whatever. They were experts in almost every field related to space travel, and had been put on the crew simply for their encyclopaedic knowledge of everything.

They could be a little unnerving to talk to at times.

'Perry, Cherry,' Shan said to the room at large.

'Yes?' replied two synchronous voices through the ship's internal communication system.

'We're going to try the first punch in two minutes.'

'We know,' said the voices in unison.

Shan touched a panel to close the communication channel. 'Of course you do,' she muttered to herself.

'Cap?' said the worried sounding voice of Carl Tilner through the intercom, 'Cap there's a light flashing in the drive room. I know the Punch Drive ain't my area, but is this something we should worry about? It's flashing quite urgently,' he added.

'Professor Smelt?'

Smelt looked up slowly; reluctant to pull his gaze away from the panel, and said distractedly, 'What? Oh, what colour is it?'

'Purple!' answered the voice of Carl from the drive room.

'No,' said the Professor slowly, 'no, that's ... nothing to worry about.'

'Ok then,' said Carl, and the channel closed.

There was something about the way Smelt had said 'no' that tugged at Shan's attention.

'Hugo?' she said sweetly.

'Thirty seconds to punch,' said the professor quickly.

'Hugo, what does that light mean?' Shan asked, picking her words with care.

'Twenty seconds to punch!' Now Shan could see definite avoidance in the professor's face. He was hiding something.

'Hugo!' she snapped, '*What* does that light mean?'

'Oh, nothing important, Captain. Ten seconds to punch.'

That did it. Hugo Smelt had, up to this point, treated the crew like a necessary inconvenience, and had even gone so far as to demand no other scientists were on crew, that they might steal any of his glory. The fact that he had referred to her as 'Captain' worried Shan deeply.

'What are you not telling me Hugo?' she demanded, but too late.

'2 ...1 ... Punch!'

That was an instant ago.

Shan had been told to expect ... well, *nothing*. From the point of view of the crew, they would be in one place in the universe one instant and in another place the next. There wasn't supposed to be a transitional period. It was for this reason that Shan was very confused indeed as she gazed out of large window upon what appeared to be space, with one crucial difference. Where there should have been endless, black infinity, there was endless, pinkish-cream infinity!

It was ghastly.

It was the hideous offspring of sickly mauve and boring beige. It was the colour you might decorate your living room if you didn't want guests to stay.

'Smelt!' she snapped, not taking her eyes away from the awful view and making the professor jump in the process.

'Yes?' he quavered.

'When do we re-enter the universe?'

'We. .. erm ... *have* re-entered the universe, Captain.'

'So why,' she said with teeth-grinding patience, 'am I looking at a cosmos that appears to have been decorated by my aunt Irene?'

The professor explained. The explanation was neither given, nor received in the best of tones. Shan was annoyed, because she felt that this sort of thing should have been explained to her beforehand, and

Smelt was annoyed because he rather felt that he *had* explained it to her beforehand.

Fifteen minutes after Smelt's initial attempt to explain things to Shan, the entire crew were gathered in the mess hall. Carl had been unaware of this, but he tended to be unaware of most things, if they weren't electrical or mechanical. The twins *did* know, but they seemed to know everything.

Shan tried again.

'Quantum?' she asked again.

'Yes!' bleated Smelt in exasperation.

'So what you're saying is that, when we punched our way back into the universe, we got the wrong one?'

'Technically inaccurate but sufficiently true, yes.' Smelt took his glasses off and rubbed the bridge of his nose. 'You've heard of the quantum universe theory?'

'Every moment spawns an infinite number of new universes, yes? Theoretically speaking, there is a universe somewhere where I am *not* having this conversation in a disgusting pinkish-cream nightmare.'

'Not theoretically; *certainly*. There are an infinite number of universes, Captain. Few people appreciate the meaning of that word. You cannot have a percentage of infinite; you cannot divide it or multiply it. Everything that you can possibly imagine, and more, exists. Including a universe where space is pinkish-cream.'

'I really think this is the kind of thing I should have been informed about.'

'I wrote you detailed reports!' wailed the professor.

'They were too technical for my understanding,' said Shan dismissively, 'I'm a pilot, not a scientist.'

'I revised them twice to make them more understandable to the layman.'

'You should have made it more understandable to *me*.'

'The last revision was a picture book!'

'Oh, that time I thought you were just taking the piss,' Shan said.

Smelt threw his hands up and sighed theatrically. 'Ok,' he said eventually, 'this is the very short, extremely inaccurate version of what has happened. It should be sufficient to help you understand.'

Shan waited, doing her best to remain impassive.

'There are an infinite number of universes, but they are, in fact, the *same* universe in many different quantum realities. There are parallel universes that are identical to our own save for the fact that you had milk in your coffee this morning instead of taking it black. There are universes where things happened differently so long ago that the present is unrecognisable to us. Perhaps Jesus was never crucified, or Alexander succeeded in conquering the entire world. Maybe the dinosaurs were never wiped out. And then there are all the offshoots of *those* universes.

Finally, there are universes where fundamental things are different. Maybe a universe where the speed of light is ten times faster than in our own, or light spectrum is inverted.'

Smelt sagged slightly. The effort of explaining these complex concepts in such a broad, inaccurate fashion made a little part of him die inside.

'So how the hell have we ended up in this one?' said Shan, abandoning all pretence of patience.

'There are variables, we call them *universal variables*. They are the foundations of the universe. Things like the speed of light, for example. There are billions of these variables governing an insanely large amount of things. *The Parker's* computer is coded to re-enter a universe that matches our own known variables exactly.'

'*Known* variables?' Shan asked suspiciously.

'It is possible that we will never know *all* the variables, but the ship considers so many of them that the furthest we expected to stray from our own universe would be one in which it rained on Tuesday, instead of the sunny day we had. This was deemed acceptable as, presumably, if our ship entered the wrong universe, an alternate *Parker* would re-enter *our* universe, and that *Parker* would be close enough to our *Parker* that it really wouldn't matter.'

'I think my brain is falling out of my ears,' moaned Tilner.

'Captain, I'm surprised at your reaction. This was a *test* flight; you accepted the risk of *death* for heaven's sake.'

'Yes!' snapped Shan, 'But this isn't death, is it? This is life in a universe where space looks like banana vomit!'

'It's not all bad,' insisted the professor, 'I have performed an analysis of the signals emanating from Sol; they are consistent with the signals

broadcast four years ago and would just now be reaching this part of space. The universe or our part of it at least, appears unchanged. Save for the obvious,' he added quietly.

'Unchanged? The bloody night sky is –'

'It is improbable, I grant you,' interrupted Smelt quickly, 'but in a quantum universe everything is possible.'

'How do we get back?' Carl asked abruptly.

'I beg your pardon?'

'*How* do we get back?' repeated Carl, his head in his hands.

'I'm not sure we can,' Smelt said awkwardly. 'There are two types of variables the computer factors in: *general variables* and *critical variables*. The general variables are just information to trim down the number of universes to those that are as like our own as possible.'

'And the critical ones?' asked Shan. She had sat down at the head of the mess hall table and was now staring blankly into the sickly abyss of space.

'They are more ... essential. Given the precise requirements for life to exist, even for matter to form, there will undoubtedly be a great number of universes where life cannot exist. The critical variables ensure we do not punch into a universe where some difference in the laws of physics would cause our atoms to spin away from each other. Indeed, the number of universes where life *can* exist would be comparatively small.'

'Comparative to what?' Shan asked.

'Infinity,' answered Perry and Cherry helpfully.

'Oh, good,' said Shan flatly.

'The critical variables,' Smelt continued, ignoring the captain, 'are hard-coded into the ship's punch drive; they cannot be changed, but the general variables are just data. They can be anything we set them to.'

'Why?' asked Shan looking at the professor with a glare that could have melted glass.

'Exploration!' answered the professor defiantly, returning the captain's glare with one that might just have melted mercury at room temperature. 'If the drive was successful we would have gone on to explore other universes.'

'So why can't we get back?' whined Carl in exasperation.

'Because,' said Perry, the male twin, 'they underestimated the variables.'

'We estimate,' continued Cherry, her voice a slighter higher pitched mirror of her brothers, 'that the variables considered account for zero point four seven percent of actual number of variables that would need to be considered to find back to our own exact universe.'

'And eight point two percent of the variables needed to ensure a universe close enough for comfort,' Perry added.

'Fabulous!' said Shan, throwing her arms into the air. 'What did the purple light mean?'

'The punch used more power than we expected. We have enough power for one more punch before we're limited to conventional engines.'

'Right,' said Shan, seeming to come to a decision. 'Professor, go set the ship up to punch us back to Sol. Carl, see if you can get some more juice out of this thing for another punch, in case we end up in a universe where there's no Earth. Perry, Cherry ... go do something intelligent.'

'Agreed,' they said in unison.

Five minutes later, the crew were ready, the ship was prepped, and *The Parker* began initialising the punch drive.

'Viva?'

'Yes, Captain,' answered the polite voice.

'Given the new estimate for the amount of variables, what is the likelihood we will return to our own universe?'

'So infinitesimal that I would still be saying zero by the time you have died.'

'Really? And how long is that?'

'Unknown.'

'Good, Professor, take us back to Earth.'

'Well?' said Shan an instant later.

'Uhm,' said the professor.

'I can see space is now the right colour. There are stars and we are in viewing distance of Mars ... which is still there. What's gone wrong?'

'I'm not sure you want to – '

'Out with it, Hugo.'

'Maybe you should look for yourself, Captain.'

Overlaid across the large viewing window, an image of Earth popped into existence. It *was* Earth. It was round, mostly blue with recognisable continents on it, but ...

'It's flat!' said Shan, as the image of earth in front of her rotated slowly to reveal the edge of the world. 'It's bloody flat!'