# Out of Sync

Michaelson felt odd. He’d finished lunch hours earlier, and was walking a routine geological survey of a new location – Basin Zanzibar. He’d never liked the vacuum-packed food, saying it was too pasty, but it had never made him feel like this. No, it could not possibly do this.

His mind kept replaying fragments of earlier thoughts, albeit interrupted mid-sentence, like it was looping back on itself and had gotten out of sync.

“WTF?” I keep hearing my own thoughts repeated, delayed by a bit, like wearing headphones that are playing back my voice with an introduced delay. Dude, is this what crazy feels like? Shit if I bring this up they’ll bench me and give Taylor all the good routes. I’ll keep moving.”

The echoes and delays got stronger, more intense, as though the volume was turned up. “No, louder is not the right word”, he was thinking, “denser, like every cell in my head is being bombarded from all sides at once.” It hurt to think. Felt like moving through molasses, with an out of sync feedback loop. “There you go, your brain is reverberating syrup. Put that in your report. ‘What’d he say? Jello brain?’ That’d be a real hit. But shit what do I do? If this gets worse I won’t be able to finish my route.”

“Where’s Michaelson? He was due back a half hour ago, Captain Sorenson asked. Taylor have you heard anything?”

[Taylor] “Nope, nothing on the radio. When was his last contact?”

[Ferguson] “About 2k’s outside the perimeter.”

[Sorenson] “That was over 2 hours ago, why didn’t I hear about this sooner?”

Michaelson looked up after taking another step. “Why is it dark already? And how do I turn off this frakking echo?” He checked his watch, 15:15hrs local time, mid-afternoon. “Dark? Now? What gives? I’d better head back. Sol don’t lie.”

[Taylor] “There. He’s over there, about a half a k out.”

[Ferguson] “What the hell is that – Tai Chi?” Ferguson asked, adjusting his scope.

[Taylor] “Huh. How can he move that slow without losing his balance?”

They brought the rover to a stop at the edge of the timpani basin a few minutes later, its surface too fragile to support a vehicle.

[Taylor] “He’s going faster now.”

[Ferguson] “Yeah. Hurry up. I want to know what kept him so long out here in the [radio dead zone].”

“Base, do you copy? This is Ferguson.”

“Base here. Go ahead Ferguson.”

“We’ve got visual on Michaelson. He’s heading back. We’re going into the basin to rendezvous and return with him.”

“Copy. Mark the time, 18:15hrs.”

“Copy base, Ferguson out.”

[Taylor] “Weird, mine says 18:14, it was just on base sync. Battery must be wearing out. I’ll have it looked at later.”

“Finally, that echo is dying down. Lights – oh, they sent out others. What the hell – I have to get rescued from a walk in the park? This is weird. What am I gonna say – I don’t know what to think myself.”

Ferguson and Taylor made their way across the slope down to the surface of the basin. The relatively hard basin was a welcome change from the sandy downslope, their pace quickening in response. A few minutes later Michaelson was recognizable without using a scope. Ferguson waved and bobbed his headlamp. Michaelson waved back, bobbing once in reply as an A-Ok. They’d adapted to communicating via scopes, lights and gestures in the [radio dead zone].

They waited for Michaelson to approach given that he was not in need of aid. Taylor handed him a slate once he arrived, with ‘What’s up – why delay’ scrawled on it. Michaelson read it, furrowed his brow and wrote back ‘No idea. I did not delay’ and handed it back. This was not the answer Tayler wanted to see. He expected a finding, injury or something tangible to explain the hours elapsed since his scheduled arrival time. He scrawled back ‘huh? explain’. ‘Can’t. won’t fit’ was the reply, indicating it was too complicated to fit on the simple slate.

[Taylor thinking] “Damn, I’ll have to wait till we clear the zone, can’t wait to hear this one.”

[19:00 hrs]

Captain Sorenson checked in with the comm officer – “What time did they enter the zone?”

“18:15 ma’am. They said they had him on visual about a half a k out.”

She considered this for a moment, doing some quick math. “So they should have only needed at most 15 minutes to reach him, and the same back. It’s been 45 minutes – they know the protocol.”

This was the first incident she’d had to deal with since taking command of this outpost. She’d only graduated the academy a few years earlier, and considered herself lucky to get a command so soon. She was hoping for something a little less remote, but had been in no position to be choosey.

The book was pretty clear about protocol breaches – zero tolerance. Vast experience, loss and hard-won lessons had forged the protocols over decades of off-world operations, and as such were not up for debate. However she was estimating their time on foot, based on a visual estimate of distance to target, both having margins of error that did not yet indicate a breach.

“If you don’t hear from them in 5 then mobilize a rescue operation.”

“Full-blown rescue? Ma’am are you sure that’s-”

“Yes.” [Sorenson thinking] ‘Yes, I think so. Nobody ever got demoted for being too safe. But if anything happens and I failed to follow, then I’m toast.’ “Yes I’m sure.”

[19:02 hrs]

“Base, do you copy?” This is Ferguson checking in.”

“Ferguson we copy. What was the cause of the delay?”

“We don’t know, Michaelson said he didn’t delay, he-”

“No – your delay. What caused your delay? You should have only needed 30 minutes. We expected you at 18:45.”

Ferguson paused. “Say again? It is 18:45, well 18:46. What gives?”

“Base time is now 19:03 hrs.”

Taylor chimed in “My watch seems to have a bad battery, maybe yours does too Ferguson.”

“That wouldn’t explain why we took 45 minutes to walk a half a k out and back.”

“Wait a sec – oh,” Taylor said, the realization dawning on him that 45 minutes of base time had actually elapsed. “Damn.”

[Base] “Ferguson – what time does Michaelson’s watch say?”

Ferguson turned from the vehicle comms and talked over suit radio to Michaelson. “What time you got?”

Michaelson replied “See that’s the thing. Seems to be running slow. I got 15:30, but it’s dark now so my suit must have a malfunction.” He thought for a second, then decided not to worry about sounding crazy. “Ok, here’s the weird part – I only perceived about an hour, maybe an hour and half going by. How’s it dark already?”

[Ferguson] “Base, he has 15:30, says he only experienced about an hour and half.”

[Base] “Proceed directly back for immediate debrief.”

[Ferguson] “Copy. Out.” Shit – there goes dinner.

Captain Sorenson considered this for a minute. This was definitely not a scenario she was expecting. I want more eyes on this. “Call engineering – have them ready to run full suit diagnostics as soon as they arrive.”

“Yes ma’am.”

The distance to basin Zanzibar was always long, but today the drive back to base felt like an eternity. Taylor is normally the last person you’d expect to be at a loss for words, yet he just stared out at the landscape in silence. Michaelson was similarly mute. Finally Ferguson broke the silence.

“So what do you guys make of this? I mean, suit malfunctions are rare enough, but 3 at once … and how did we take so long?”

Taylor was visibly shaken. “Dude, I, uh, I mean, I don’t know. I feel ok. But we’re gonna look like idiots to the debrief board. I can walk a k on a basin in 10 minutes. We felt like we were gone at most 20 minutes, 30 tops. Which is what my suit says.”

Michaelson sat for another minute, thinking. Finally he spoke “Did you guys get the echo?”

“What echo?”

“Farther out on the basin. It got stronger as I went farther out.”

“Whoa. Was that where you were moving in slow motion too?”

“Say what? I never slowed down. Standard march pace the whole time.” They all knew Michaelson’s ultra-running hobby and his innate ability to pace himself steadily for hours without needing to refer to a watch, so this statement carried some weight.

[Taylor] “Uh, no. Dude you looked like Tai Chi man when we showed up.”

[Ferguson] “And sped up as we got closer. Holy shit…” Ferguson trailed off.

[Taylor] “What is it?”

[Ferguson] “Time dilation.”

[Taylor] “Bullshit. They’ll send us back in a padded ship if we go on talking like that.”

[Michaelson] “But how else do you explain the-”

[Taylor] “I don’t. We just go in and tell what we saw. Let them reach that conclusion on their own.”

[Ferguson] “Yeah, agreed. Besides, time dilation only happens near light speed.”

[Michaelson] “Or near a black hole.”

[Taylor] “Right, extreme gravity.”

[Ferguson] “Did you feel heavier?”

[Michaelson] “No, everything felt fine, aside from that damn echo.”

[Ferguson] “Ok, this is now bona fide weird.”

Taylor thought for a minute. “Dude, you could go out there with the captain and get freaky – you could say you did it for days and be tellin the truth!”

[Michaelson, laughing] “Shit that’s funny. Do NOT repeat that back at base. She’d bust you down to private if she hears that.”

[Taylor] “Might be worth it.”

[Michaelson] “Huh?”

[Taylor] “If it lasted for days.”

[Ferguson, laughing] “Shaddup already.”

# Appendix

Source of time anomaly – ideas:

* Crashed ship. Under sediment. Stasis field generator, breached its containment. Strength of field drops off as 1/r2 with distance from the source. Affects all wave propagation – gravity, light, radio, the vibrations of cells in our body. Time slows down, like being near absolute zero but without the drop in temperature.
* Nexus of large forces nearby, each of which is individually not strong enough to cause any noticeable effect. However when all 3 intersect there is a multiplier effect, a local maxima.
* Fragment of something really dense, like a bit of neutron star that was cast out in an explosion, yet retained cohesion.

If you fire a projectile through the field it will retain its momentum. It will age less than if it had been fired through unaltered space, but will otherwise keep moving. It will experience more heat buildup on its nose, since its own molecules cannot vibrate fast enough to dissipate heat normally.

Similarly you could drag a cable through the field, pulling both ends from outside the field. Excavation would proceed in this way. Drag a cable around it, then pull a bucket back through it. Drag the bucket back and forth to excavate. Like the projectile the bucket will experience less subjective time, but will still respond to being pulled. At the highest field strength the winches will need to be slowed since the bucket perceives material coming at it very fast. Becomes brittle. Can’t dissipate heat.

Any means that uses localized motion – robots, vacuums, drones – are all subject to the time slowdown. Success requires a device to be tethered back to normal time. Mechanical means only, no electronics nor drive motors in the field.

The field slows all electro-magnetic waves, including gravity. Objects that fly through it won’t plummet in the field. Planet has little erosion anyway due to thin atmosphere, so the geological footprint of the stasis field is not noticeable (i.e. that it has changed even less).

Stasis field, impenetrable to radar at the source. Clarity of radar emerges as field strength diminishes. Rest of ship visible. 1km long. They dig down to the other end of the ship and find a way onboard, then disable the stasis field via controls.

Later, once we can generate one, we can change the frequency and have it act as artificial gravity. It can make an object behave as though it is more massive by converting energy into apparent mass.