

## Entanglements

By  
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Ursula sported quite a shiner when she arrived at work bright and early the Monday after her vacation.

"Ursula! What happened?" Though in her forties, she was in perfect shape and very athletic.

"Hi, Ben." She touched the purple splotch around her eye gingerly with her fingertips. "Oh, this? It's just a bike accident. You know how it goes, my bike stopped suddenly and I didn't. I flew over the handlebars and landed on my face."

"Ouch. Are you okay?"

"No big deal." She laughed.

I loved the way her full red mouth puckered up when she laughed. It seemed to be begging to be kissed. Without Ursula around, last week had been the longest of my life.

She pointed at one of her spare office chairs. "Take a seat. Tell me what you've been up to while I've been gone."

"The good news is, the problem we were having wasn't with the particle entanglement. It was a software glitch. Someone," I glanced out the window, "made a typo in the code, which I finally found after hours of debugging."

Smiling, Ursula shook her head. "I thought it would turn out to be something like that. Don't worry about it."

I stood up. "Let me show you what I accomplished last week in the lab. Remind me where we were when you left."

"We were trying to create particles whose quantum properties were linked together or entangled. Why don't you tell me why?" she asked, ever the teacher.

"The linking or entangling means that if you change one group of particles, the other is also changed instantaneously. Potentially, it's a method of instantaneous communication. We want to do it because that's how quantum computers work."

"Good." She nodded and stood up. "Let's go down to the lab so you can show me the details."

I had fun showing her what I'd accomplished while she was gone.

After a couple hours she stood up and brushed a strand of hair behind her ear. "Sorry Ben, I have to go to a committee meeting."

I reluctantly turned my attention from the experiment. "Do you want to go for a welcome home beer after work?" I asked.

She started to say something and then stopped herself.

I quickly added. "We can invite Alex."

"Uh, I'll check with him and get back to you." Her gaze darted to the floor.

I grinned. "You could just order him to go; you're his boss, after all."

Ursula laughed weakly, her head lowered, as she started for the door.

Ursula and Alex ended up meeting me at our usual hangout, The Republic of Beer. I sat at the graffiti-carved wooden bar, sipping the lemonade/wheat-beer special of day when they arrived.

Ursula put her briefcase on the stool next to me. "That looks good, Ben. Order me one of those, please. I'll be right back. I'm going to the rest room."

"Sure thing, Boss." I grinned.

Alex, I mean Professor Hess, took the next stool over. He was tall and skinny with a beak-like nose. I could probably take him in a fight. "Barkeep. I'll take a Chocolate Stout," he barked.

I added, "And another Special here, please." I pointed next to me.

The bartender glanced at Alex, took in his dour expression, and quickly placed two coasters and two beers on the bar.

Alex took a sip and smacked his lips. "Mmm." He sat back in the stool.

"Professor Hess, did you guys have a fun vacation?" I asked.

He turned and looked at me. "Yeah. Except when Ursula fell down and got that black eye."

"Oh?" I raised my eyebrows. "Fell down?"

"Yeah. We were at the campsite, drinking around the campfire, and she fell down and hit her head on a rock."

I knew not to disagree with him. He never let anyone win an argument. "That's too bad."

Ursula came back, sat down, and took a big swig of her drink. "Ooh, this is good. I like this one. Thanks, Ben."

Alex got up. "My turn."

As soon as he was out of sight, I asked, "How did you get that shiner, again?"

She turned to me. "I told you. I fell off my bike."

"I knew Alex was lying! The jerk!" Under Ursula's gaze, I shifted uncomfortably on the stool. "Ursula, I know you're my boss and all, but if you ever need any help with anything, anything at all, you can call me day or night."

She put her arm around my shoulder. "You're really very sweet, Ben."

"I mean it, anything you need." I reached up and touched her hand for a second.

"In that case, I need you to play nice with Alex."

Slowly, I took a sip of beer. "For you, I'll try."

When Alex returned, I jumped up from my barstool. "I'll be back."

Ursula smiled.

A little while later, as I walked to my seat, I noticed the place was filling up with Happy Hour revelers. Twenty-somethings stood four deep around the bar. Ursula and Alex were engrossed in conversation when I came back, and didn't notice me as I tried to shove my way through the crowd.

Alex jabbed his finger in Ursula's face and then stood up. "Be home by seven."

Ursula said softly, "Yes, Sir." She sank down in her chair. "Of course, Sir, whatever you want." She shook her head and then rested her cheek on her hand, as Alex left without any further orders.

I sat down and took a sip of beer. "Is everything all right?"

Sighing, she straightened. "Yes, of course. Everything's fine. Good. Great. Everything's great."

"I have to say, it didn't sound totally great."

She turned to me, face flushed. "Were you eavesdropping on my conversation?"

I shifted my stool away from her. "Uh, not on purpose."

"Well, you just don't know what marriage is like. You've never been married. It's hard work."

"It shouldn't be that hard."

She snorted. "Divorce is horrible. My parents split up when I was five, and it practically killed my mom. I'm not going through that."

I jerked back. "Who said you would?" I said softly. Where in the world did that come from?

She took a deep breath. "No one."

We passed some time sipping our beers and studying the graffiti on the bar.

Finally, I said, "So, speaking of your parents, you don't talk about them much. Like never. "What do they do?"

"My mom is a retired school teacher. I don't know what my father does. I never heard from him after the divorce."

"Never? Not even birthdays and Christmas?"

"I can't believe you said that. You don't understand things at all."

"I, uh, apologize, if I said something wrong. I'd like to understand. Explain it to me." I said.

She stood up. "I have to go." She strode out.

I glanced from her retreating back to my watch: 6:45.

Unfortunately, things remained strained between Ursula and me for the next three weeks, although we continued to make progress in the entanglement experiment. We subjected two samples of cesium atoms, one millimeter apart, to a laser to orient their magnetic spin. Then, we sent a single laser beam through both samples to entangle them. Modifying one of the samples had an instantaneous effect on the other. Gradually, we moved the samples farther and farther apart, and with some tweaking, we were still able to have one affect the other instantaneously.

Thus, work was going great, but I was pretty worried about our relationship. I couldn't believe I'd hoped for more than friendship with her. We stopped shooting the breeze and going out for beers like we used to.

One warm May afternoon, when we were in the middle of an entanglement experiment, I resolved to broach the subject of our friendship. "So, I'm sorry about what I said the bar. I was out of line."

She sighed and looked at me from amongst the sample containers, lasers, computers, and other assorted equipment.

A bead of sweat rolled down my cheek. "I apologize." *It sure is hot in here, I thought. Being surrounded by all this electronic equipment probably doesn't help.*

She crossed her arms. "Well, you're right about that. This lab is like an oven." *I wish they'd turn on the AC.* She pushed the sleeves of her blouse up.

I nodded. "Yeah. We need AC." *Wait a minute....* My eyes were drawn to the four finger-shaped marks outlined in reddish-purple on her arm. *What's that on her arm?* My eyes moved up and met hers.

*Shit.* Ursula quickly pushed her sleeves back down. *He wouldn't understand.* "What's what?"

"Are those bruises? Wait, I wouldn't understand what?" *What's going on here?*

"I have to go." She bolted out of the lab.

I sank down on a lab stool. What the hell just happened? I shivered. Could I read Ursula's mind? I shivered again. I suddenly felt cool—which was odd. I trudged over to the lab thermometer, which registered over ninety degrees. I definitely didn't feel ninety degrees. What the hell was going on? Could it have something to do with Ursula? Were we somehow ...entangled? I had to find her and figure it out.

When I got up to her office, she was standing directly in front of the air-conditioner, staring out the window.

"Ursula, are you all right?" I asked.

"You startled me." She forced a smile. "I can't seem to cool off."

"Something weird is going on." I entered her office.

*I think so, too.*

"There!" I pointed at her. "Did you just think 'I think so too.'?"

She nodded.

*I knew it,* I thought.

"Did you just think 'I knew it.'?" she asked, her mouth dropping open.

"Wow. It goes both ways," I said, walking to her.

"What goes both ways?" A voice slammed into us from the doorway.

As one, we turned to face it.

It was Alex.

Ursula was the first to recover. "Alex. Hi." *Shit. He has a terrible temper. You should get out of here.*

*No.*

"What's going on in here?" Scowling, he looked us over. "Why are you so sweaty? Get out of here, kid. This is between me and my wife."

"No." I stuck out my chest.

"Don't get involved Ben," Ursula said. "He might hurt you." She approached me.

"Or I might hurt him!" I clenched my fists until my nails bit into my palms.

Alex took a step toward me. "I'd like to see you try, kid."

Before I knew what was happening, a fist was flying toward my face. I barely ducked in time. "Call the cops, Ursula!" But when I looked for her, she was standing right next to me and blood streamed from her nose. "Oh, my God! Ursula! Are you okay?" I grabbed a wad of tissues from her desk and handed them to her, clasping her hand for a moment. "I'm so sorry—I didn't mean for this to happen."

She nodded as she took the tissues. *It's not the first time he's hurt me.*

Alex, ten feet away now, snorted. "Ursula won't say anything."

"Well, then, I will!" I said stepping between them.

"I'm a professor and you're just a grad student. Who do you think they'll believe?" he said.

I resisted a strong and unfamiliar urge to take a step back. It wasn't like me to run from a fight. "I think they'll believe me and the esteemed Chair of the Physics Department." *Right, Ursula?*

*Ben, what's going on? I feel different, stronger. I'm not as afraid of him as I usually am.*

*I think it's from the experiment. We're all mixed together somehow.*

*Could it be?* She pinched her nose and glared at Alex.

Alex stared at us with narrowed eyes. "What's going on? Why are you so quiet?"

I focused on Ursula. *Forget about the experiment for now. You can stand up to him. You don't deserve to be treated this way.*

*You're right. This will be the last time he hurts me.* She slowly nodded. "I've had enough, Alex. We're through. I'm pressing charges this time."

He sneered. "Yeah, right."

And then she picked up the phone and dialed three numbers.