And the Universe Didn't Blink

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A black hole is made from warped space and time. – Kip Thorne

Time: A stubbornly persistent illusion. – Albert Einstein

For my father, William Schmidt, the first scientist I was privileged to know.

Thanks to Steve Wendt: science teacher, Arctic explorer, director, playwright, for taking the time to explain the sciences to a science-challenged playwright.

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CAST: 2 (1w, 1m)

MIRANDA SCHMIDT (female – 18-21) Miranda is lost in grief over her father's death; she is a bit of a porcupine and has a pressing need to see her father one more time. Can the universe cross the line between life and death? She turns to the stars for answers but when they stay mute help comes from an unlikely source.

OTTO SCHMIDT (male – an ancestor from Miranda's past – you can cast him in his 20's, 30's, 40's, 50's or beyond). An ardent enthusiastic scientist. He's a past vigorous Russian explorer, astronomer, mathematician. Larger than life – emotionally, intellectually and even physically, he is Miranda's ancestor – a second cousin once removed. Otto's story is taken from Russian history. As for the fanciful – that is all mine.

PLACE: The northern shore of Lake Superior which becomes the Arctic ice.

TIME: Today

RUNNING TIME: 80 minutes (the play is dense so the number of pages is misleading)

SYNOPSIS: Does grief have a science? Can it help you heal? Miranda dwells in the past – any past – as long as the world is prior to her father's death a few months ago. Reeling from the need to scatter her father's ashes, Miranda comes across an ancestor from her father's past – the "astronomer-physicist-arctic explorer" Otto Schmidt. With Otto, Miranda explores the nature of the universe, loss and ever-lasting presence and starts a path to ease herself back into the world.

I think the play works better with no scene breaks. All changes can be done with lighting. There is an optional intermission if you insist.

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MIRANDA

(*She can be seen alone in the dark or this can be recorded during the blackout before the lights come up.)*

Once there was this blazing star. It grew brighter and brighter until one day – the lights went out and it collapsed into a small, white, dwarf star. Her outside was scorching hot but inside she was cold – colder than an arctic night.

(*Lights up on MIRANDA. She is in on a craggy cliff overlooking Lake Superior. It's January/December along the North Shore of Minnesota. MIRANDA is holding an urn containing her father's ashes. There is a soft wind and the sounds of a winter lake and woods. It's a cold winter day with an absence of color. Maybe Miranda supplies the only color.)*

MIRANDA

Happy New Year, Dad. This is the highest point above the lake. You can finally fly now. I know you always wanted to. But if I throw the ashes, gravity will send them down, and I want you to go up – up – up and soar. I wish I could build an airstrip to the stars. I go back to school next week. I took last semester off – to – you know – do things. Things I never planned on doing. Grandma came up from Florida and stayed with me. We are helping each other.

I think this is where you wanted to be. With the bluffs and the gusts from the lake – you could be swept in four or five directions. Maybe even to the Arctic. When we camped here, we talked about the lake taking us out to sea to see then world. Remember? Just so you know, I'm *not* camping today. People up here are thrilled that it's warmed up to zero – but it's still a bit chilly for me. I prefer coming here in August. It will be getting dark soon. And spooky. I'm thinking of the shipwrecks below. You told me - how many stories about Lake Superior sinking ships? And then about your distant cousin who wrecked his ship in the Bering Strait. I know we had plans to visit the Arctic but I refuse to go without you. This is as north as I care to go. And Dad? I'd do anything for a do-over. I'm so sorry. You know that, right?

(MIRANDA opens the urn. She is poised to scatter the ashes and stops.)

I can't. I just – can't.

(*The wind kicks up. It swirls. It roars. It gusts. It howls. The lights similarly move. A ship horn blares loudly. OTTO appears in the background. We are now in the arctic. If we want to get specific, we are in the ice floes in the Bring Strait about one mile from the Bering Sea.)*

OTTO

Everyone! Get on the ice. Women and children first. Then the radio! Grab the supplies and get off the ship before it sinks!

(OTTO approaches Miranda.)

OTTO (cont'd)

Don't just stand there! Grab something and abandon ship! Ernst! I told you to dismantle the radio! Without it we are lost. Next – the tents and the food. Every bag of food must make it to the ice. And the heaters. And tools.

(The ship horn sounds more mournful.)

OTTO (cont'd)

Are the women and children safely on the ice because we're sinking fast. ERNST! Contact Moscow later. Grab the radio NOW! Seaman Youstevich, you're carrying too much! Seaman Youstevich! Man overboard! Man overboard!

(*A car horn now blares loudly and we hear an awful crash.)*

MIRANDA

DAD!

OTTO

Get off the ship!

MIRANDA

I need to find my father. He's hurt!

OTTO

Get on the ice!

MIRANDA

I'll slip –

OTTO

- I'll help you –

MIRANDA

My father!

OTTO

You'll drown.

MIRANDA

I can't –

(OTTO holds out his hand.)

OTTO

Come here.

(MIRANDA takes his hand and looks out. Maybe we hear the sound of waves.)

You're safe.

MIRANDA

You look familiar…

OTTO

A friend of your father's.

MIRANDA

No –

OTTO

- You're cold. Here. Wrap this around you.

MIRANDA

Did a wave grab me? Where am I?

OTTO

You're where you need to be.

(OTTO wraps his jacket around MIRANDA.)

MIRANDA

The ship is gone.

OTTO

But the supplies are here. We have all we need to survive until rescue.

MIRANDA

The lake? The cliffs?

OTTO

It's here. Everything is here.

MIRANDA

I don't see them.

OTTO

You don't need to.

MIRANDA

I don't understand.

OTTO

Give it time.

MIRANDA

Time runs out. *(MIRANDA finds a coin in OTTO'S jacket.)* What is this?

(MIRANDA brings out a coin – a kopeck from the jacket.)

OTTO

A kopeck. Barely worth one of your pennies. Still, newly minted and a reminder of where I come from.

MIRANDA

The U.S.S.R. 1933. An antique? But it looks like new.

OTTO

It was new. 1933 is when I left port. Of course, now it's 1934.

MIRANDA

That's insane. I'm knocked out by a wave, right? Unconscious? Drowning? Sucked into a black hole?

OTTO

Let's just say, I caught you somewhere in time. Although science tell us "time" is a manmade construct.

MIRANDA

But I know you. You're familiar. But not.

OTTO

Otto Schmidt, Russian arctic explorer, mathematician, physicist, hero of the Soviet Union. By all accounts, I was and continue to be a brilliant man.

MIRANDA

Wait, "Mr. Not Overly Modest but Brilliant Man," I've seen photos of you.

OTTO

Of course! Everyone has!

MIRANDA

In a scrapbook! You're in my father's scrapbook. Omigod – you're dead. Does that mean I'm dead? If I'm dead, where's my father? He'd be here. I know he would.

OTTO

You're not dead.

MIRANDA

But you are.

OTTO

You need not remind me. But who knows? As I said, "Time is a/

MIRANDA

/"manmade construct." Actually Einstein said that. Which is all that I remember from Physics 101. But that scrapbook – littered with bits and pieces of – YOU! I can't believe this! You're like my father's great uncle many greats over. He adored you or rather the fact of you. Those exploits -

OTTO

- were extraordinary.

MIRANDA

Let's not return to you being a "legend in your own mind." Let's move forward with, "What is going on?"

OTTO

There's no point hiding your light under a bushel.

MIRANDA

I want to know/

OTTO

/No. For the here and now, you know all you need to know.

(Lights change.)

Look out there. The sun is down. Watch the sky. All your answers are there. Nothing but space and ideas of time.

MIRANDA

The stars. I want to be up there with them.

OTTO

They may not be there.

MIRANDA

Of course they are. I can see them. Stop being so contrary.

OTTO
What you are seeing is what they looked like in the past. The stars are so far away it takes years for their light to reach us. A star could be burned out and we wouldn't know it for hundreds of years.

MIRANDA
I know that. But I never thought about the sky giving us the past. That's exactly what I need - the past. I need the sun to shine its rays on me as everything was a few months ago.

OTTO
And I need to have it shine on me as I was many decades ago. But I'm afraid the only past you'll get from the sun is eight minutes.

MIRANDA
So, if I want to see the sun as it is now, all I have to do is wait eight minutes? I can do that. I have nothing but time. I wonder if that faraway star sees my father.

OTTO
It's possible. That one – further away – maybe it sees my parents on their farm in Belarus. Unlikely but again possible.

MIRANDA
How far back do the stars go?

OTTO
How far back do you want them to go? Hundreds of years? Decades? The further away they are, the longer it takes for its light to reach us.

MIRANDA
I want some starlight to reach me from last August when I was out camping with my father. It was near here. Or near where were I was five minutes ago or eight minutes ago or whenever.

OTTO
Who knows? Maybe we each have a star seeing our past. Maybe there's a star looking at my brothers and sisters in Belarus and another one watching you camp with your father.

MIRANDA
And somehow the light from the stars got intertwined and you wound up here with me.

OTTO
May-be.

MIRANDA
Except the stars screwed up. I got the wrong person. I was supposed to meet with my father. Do you really think there's a star up there who sees my father?

OTTO
That's not a scientific conclusion.

MIRANDA
No. But it's a beginning. I've spent the last few months living with an ending and now the stars are giving me a beginning.

OTTO
A beginning of what?

MIRANDA
Of seeing what they see. Seeing my father.

OTTO
That's more science fiction than science.

MIRANDA
(MIRANDA grabs a mirror from her purse.)

Hold this up. Higher.

(*OTTO holds it up high.*)

OTTO
You'll never see your reflection with the mirror up that high.

MIRANDA
Is it true what you said? That when we look at the stars we are looking into the past?

OTTO
I said it was possible.

MIRANDA
If that's true – then the past could be looking down on us. The way we were a few years ago.

OTTO
There are lots of variables. One cannot be sure.

MIRANDA
I need to do that – look down on the world as it was last year. Before my world turned upside down.

OTTO
It would be easier to find a photograph of that time and look at that.

MIRANDA
A photograph doesn't have a heartbeat. I want to look back at life and feel its beating heart. Is *that* possible?

OTTO
My dear, all things are possible. We are only limited by what we understand so far.

MIRANDA
Suppose I hung a mirror on a star – would it reflect back to me on earth as it was years ago?

OTTO
You could never hang a mirror on a star. It would take more than 80,000 years to reach even the nearest star and even if it were possible to get there, the mirror would burn up.

MIRANDA
There you go again – being contrary. It's an inflammable mirror, okay? Just suppose.

OTTO
Assuming you could hang an "inflammable" mirror on a star and assuming you could get it there faster than the speed of light *and* assuming that a telescope could magnify its reflection – I suppose one could conceive of it. It is a bit fanciful. The universe is expanding. Even if you did travel at the speed of light, the light would always be just beyond reach.

MIRANDA
My head is spinning.

OTTO
Physics will do that. *If* your "inflammable" mirror was in place and *if* there was a telescope powerful enough to view what the mirror reflected and if so many other "improbable" variables occurred – what you propose could be possible.

MIRANDA
That's what I want to hear!

OTTO
But highly far-fetched! In the present – both yours and mine – the laws of physics say that while you can see the past in the sky, you cannot view the past here on earth.

MIRANDA
But – the possibility does exist?

OTTO
It may be possible in a more advanced time. But not today.

MIRANDA
Don't you understand? That's all I need to go on – knowing that someday in my lifetime – it may be possible.

OTTO
Of course the further you go into the future – the further you will be from that past.

MIRANDA
Don't do that! Don't hold out hope and snatch it away.

OTTO
Do you want the science or the fairy-tale?

MIRANDA
I want – the scientific fairy-tale – where the heroine meets her father one last time and talks to him. Sincerely apologizes to him. My happily-ever-after.

OTTO
If you want to propose a theory to find the past, learn, study. Know your facts. Analyze what you know. Ask questions. But don't expect an answer overnight. I worked on a theory for decades.

MIRANDA
Decades! Who has decades to work on a theory? I need to finish college and find a job.

OTTO
My dear, what do you have but time? Time to work out a theory. A good theory will keep you going for decades. Take what you learn here with me and carry it home with you.

MIRANDA
All right, Mr. Theory. I'm here now. Teach me. I've been pulled towards a black hole for months and I can only fight it if I can see through the starlight. I don't need an old theory. I need a new one. I need to see what they see. Can you do that?

OTTO
It's not what the stars see that is important. It's the theory. It's understanding their light … how they came to be. If you have a theory, it will follow you wherever you are. It will tease you and dazzle you. There is a wonder in waking up with the knowledge that today could be the day you make the final connection, the final proof of your theory. It's that excitement that will keep you out of the black hole. Why, I worked on the origins of the universe for years. I imagined –

MIRANDA
- Wait! Imagined? What do you mean imagined? Isn't that a little fanciful? Where are your facts?

OTTO
Didn't I say that in the early stages you need imagination for your theory?

MIRANDA

No.

OTTO

Oh. I should have. I did imagine the early days of the universe – what did it look like? Dust and matter colliding for years –

(OTTO could take out some papers from his supplies on the ice and crush it into a ball. Or, if you've managed some ice floes onstage – he creates a snowball from that. Or not. Just play. He acts this out. He loves this. He lives for this.)

OTTO (cont'd)

- Until eventually – our sun passes through a dust cloud attracting more and more pieces of matter – until the matter – became planets. It's astounding - this theorizing!

MIRANDA

You do get worked up.

OTTO

Of course! These theories are ways of having a conversation with the universe. First the brain starts popping and then the body joins in the brain dance.

(OTTO spins with his paper snowball. It could be awkward, it could be graceful but OTTO is definitely physically into it 100%.)

OTTO (cont'd)

Imagine these tiny planets just spinning. And soon they are orbiting the sun because of the sun's gravitational pull. And as they spin – they acquire more matter and in it is a tiny particle that will be a bit of your father, a piece your mother and if you're lucky – maybe even a touch of me.

(OTTO spins MIRANDA in a joyful, twirling dance.)

It's spinning as a snowball does – gathering more and more snow until the tiny snowball is a massive snowman and finally – a frozen planet! A frozen planet that will warm up and one day produce life!

(*MIRANDA is enjoying this interlude and they finally collapse on the ice.)*

MIRANDA

How long would it take – this acquiring of snow – or rather matter – to become planets?

OTTO

What did you say?

MIRANDA
How long did it take? One year? Twenty years? How long did it take for these tiny planets to become large ones?

OTTO
Young lady, that's a very good question. There's a mind hovering in that busy brain of yours. You might want to use it. What you asked? That was my downfall.

MIRANDA
So – not a good theory?

OTTO
I didn't say it wasn't a good theory. It was – problematical. The theory fell into great favor. It was endlessly discussed - as all great theories are.

MIRANDA
Your modesty is showing again.

OTTO
I just believe in myself. Back to my theory: I called it "The Theory of Accretion." I love that title. But in the end, it was proven that according to my theory – the formation of the planets would have taken so long - that they would have had to be formed before the universe existed. Which is not possible.

MIRANDA
How off were you? Like a million years?

(OTTO clearly enjoys being off millions of years in his theory. He booms like a trombone.)

OTTO
More! Billions! For my theory to be correct, our galaxy would have needed to have been created billions of years earlier than is believed. Still, by proposing a theory, I sent many scientists on a course to disprove it. Scientists love to disprove theories. But – they needed my theory to begin with. So I still count it as a win.

MIRANDA
Maybe I should devise my own theory. A theory that will let me see my father again. Time and space is still such a mystery.

OTTO
What I wish for you is that you have as good a time with your theory as I had with mine.

MIRANDA
And it still makes you happy – that you were wrong? By like – a lot?

OTTO

I love this theorizing! I began again. I looked at it from another angle. I looked for evidence that the process of becoming a planet was not at a turtle's pace.

MIRANDA

So – you worked on it even though you were wrong?

OTTO

I worked on it because I knew it was wrong. Which is the richness of the speculation. Failure is exciting.

MIRANDA

Failure is the end.

OTTO

Failure is a new chance to succeed. I turned my theory every which way. Where did I go wrong? That would let me start again. And indeed – it returned to favor and then was discarded again. Time is funny. What is true is later false. But what in the beginning seems fanciful can become reality.

MIRANDA

Gotcha! Notice how you – "Mr. Evidence Seeker" – speaks of the fanciful.

OTTO

You're right – there is room for both. But don't get too caught up in the fanciful – find the truth – that will give you answers. My Theory never did find its place in the top ten of scientific discoveries.

MIRANDA

Sorry.

OTTO

Don't be. It proved a steppingstone for other seekers.

MIRANDA

You do accentuate the positive. I'll give you that.

OTTO

It makes for a rewarding life. Even if I never make it off this iceberg, my life has been good. I had a "good run" as you Americans like to say.

MIRANDA

"Had a good run?" *How are you here?*

OTTO

Ask the universe.

MIRANDA

I did when I first came here. It's staying quiet. You're – what? - an interesting twist, but what I want … what I need is my father.

OTTO

Maybe he thought we should become acquainted. Your father worshipped me.

MIRANDA

Your ego is showing. Again.

OTTO

He used to go into your grandmother's trunk and bring out the scrapbook of me on the Chelyuskin. He loved the details of our ice rescue. He would pretend to be a pilot and play "Mission Impossible: The Ice Rescue."

(OTTO sets himself up as in an airplane. Maybe he has a scarf and ear muffs to costume himself. He then makes airplane noises.)

OTTO (As the "rescuing" pilot.)

"Here I come to save the day!" I think he got that phrase from a "Mighty Mouse" cartoon.

"Fear not, Captain Otto Schmidt, your trusty Stevie Schmidt is here to rescue you and bring you to safety." *(Maybe more airplane noises.)*

(Smiling at the memory.)

OTTO (cont'd)

He was adorable. He had a rabid curiosity and would drive your grandmother mad with his questions. "What did airplanes look like in 1934? How could they land on ice? Were the planes on skis?"

MIRANDA

And you know this, how? You never knew my father.

OTTO

There seems to be a collision of memory here. Yours, mine and his.

MIRANDA

This is too much to throw at me. You say, we can't visit the past. But here I am - visiting the past.

OTTO

"Seem" is the important word, isn't it? Time does seem to move forward. It's memory that looks back.

MIRANDA

If I am lost in memory, I'd rather be lost with my father. That's really what I wanted. I'd like to exchange you for him.

OTTO

"You get what you get and you don't make a fuss." I used to tell that to my children. In fact, maybe I am also here to figure out this crossover. Why am I with you and not visiting my grandchildren?

MIRANDA

The stars screwed up.

OTTO

The stars are all that is true. If something's amiss, it's because we willed it. If I was in my time, I'd take it do Dr. Freud to sort out. Maybe we're in colliding dreams. Lots of maybes - without any science to back us up. If I truly was in the here and now, I would be trying to figure this out.

MIRANDA

Are we really related as my father thought? Or did he just jump on the fact that we have the same last name?

OTTO

It is a common last name – what do you think? I had an Uncle Julevich – Julius to you. My full name is "Otto Julevich Schmidt." Uncle Julius left for greater things in America. We didn't hear much – I think he went into the trades like my father. But I – of course – became world famous as the Hero of the Soviet Union. I believe your Uncle Julius must have heard about me and passed down my heroic exploits to his family.

MIRANDA

How are you even a hero? Heroes don't sink their own ships.

OTTO

See all those passengers in the distance on the ice? It was my thinking that saved them. I was richly rewarded with titles. Money would have been helpful but the Russians like their titles. Stalin thought it was good public relations.

MIRANDA

So you sank your ship and became a hero? I think there's a disease where you cause a catastrophe and then save everyone to make yourself a hero.

OTTO

But I didn't cause the catastrophe. Perhaps I should have turned back and not allowed the captain to get us caught in the ice floes. But I was so excited about seeing open water ahead, I wasn't thinking properly. I believed – as did everyone on the ship – that we had found a shorter trade route to the sea without having to winter in Siberia. Who wants to winter in Siberia? But the

OTTO (cont'd)
open water was just beyond reach. We were all on deck applauding our accomplishment when the ice got us.

MIRANDA
So while you were all patting yourselves on the back, you did something heroic? Like what?

OTTO
I got everyone safely home. It was my quick thinking that kept people alive on the ice. Everyone had a job to do. Everyone was warm and nourished. Ernst made sure the radio was in working order. He was also honored. My engineering knowledge let me build an airstrip/

MIRANDA
/Wait – you built an air strip?

OTTO
I'm building one now.. How else can we be rescued? Spring is coming and the ice will sink.

MIRANDA
Won't a boat come buy for you? Like with the Titanic?

OTTO
No boat will dare to go through these ice floes for months. Certainly not after knowing my ship sank. Our only hope is air rescue.

MIRANDA
How can you build an airstrip on ice?

OTTO
We have spades, shovels and a crowbar. It's possible.

MIRANDA
Yes, but is it probable?

OTTO
Of course it is probable. Or I would be walking everyone to Siberia by now. It does look like I need to do the rescue all over again. It's important that it has the same result – no lives lost. The ice is shifting though. More than it was when I was here originally. I need to get everyone off of it – including you - before we all sink.

MIRANDA
I'm not going anywhere. I like it here. There's a reason I am here. If I'm here and you're here, it's possible that my father is also here. I just have to find him. This is the first time I can feel my father since he died. I know if I stay, I could see him again. With his beating heart.

OTTO

You're as stubborn as I was at your age. Yes, I definitely see myself in you.

MIRANDA

I do not see myself in you!

OTTO

There's a reason you're talking to me. There's a reason you haven't run away. It's possible you want me to help you.

MIRANDA

If you really want to help then *HELP! Go back to that netherworld from where you came from and find my father and bring him to me!*

OTTO

I can't do that.

MIRANDA

Can't? Or won't?

OTTO

I don't know where he is. Or even where I am. My ship says I'm near the Bering Sea. But my compass says I'm somewhere in middle America on top of Lake Superior. It is a mystery.

MIRANDA

What are you doing here?

OTTO

I don't know.

MIRANDA

At last! Mr. Know-it-All doesn't know something.

OTTO

Maybe I'm a memory of a past regret.

MIRANDA

I'm the one with the past regret! I'm the one hurting! I'm the one lost in time and all I get is a memory that isn't even mine.

OTTO

If all of this is so wrong, why do you stay?

MIRANDA

You know things I want to know.

OTTO

Such as…

MIRANDA

(Beat.) Do you think it would ever be possible to travel faster than the speed of light?

OTTO

How did we go from our memory collision to the speed of light?

MIRANDA

Stay with me. We broke the sound barrier, right? Eons ago. So, why not break the light barrier?

OTTO

Apparently our cosmos has a speed limit of 186,000 miles per second. It would need an infinite amount of energy to surpass that.

MIRANDA

That isn't what I want to hear! I need to know if this infinite amount of energy can be gathered to go faster than the speed of light.

OTTO

Where does this infinite amount of energy come from?

MIRANDA

The universe. It's infinite, right?

OTTO

In truth, we don't really know. Maybe it's infinite. Maybe it's finite. The observable universe is definitely finite. Maybe if you walked the entire universe, you'd never stop or maybe you'd be right back where you started. It's hard to say. Nobody's ever walked it. Did you ever think about taking a mathematics course?

MIRANDA

I took one semester of "The Concepts of Mathematics." That was enough. And I only took it because my father insisted. He thought it would help me be more well-rounded. I'm majoring in library science – like father – like daughter. Numbers make me glaze over. Words entice.

OTTO

So you are making a life surrounded by books. You do want to learn.

MIRANDA

My father used to say that books 'crossed barriers." They speak to us across time and space.

OTTO

Which is what you want.

MIRANDA
Well, yeah. Isn't that why we're here? I could probably use a book speaking to me right now.

OTTO
But you have to find the right book. Among millions. Still, you do want to learn. You will learn many theories – possibly even mine will come up.

MIRANDA
Your old, discarded theory won't help me see my father. I'd just as soon have a book talk to me as you.

OTTO
Think of me as your talking book.

MIRANDA
I want to talk to my father. You want to talk about your theory even though it was wrong. I don't see any connection.

OTTO
Because we haven't figured out the connection yet. There are relationships between theories. Connections that are in front of us but we don't have the means to bring them together. What is physics but a series of laws that began as theories? Ye, my theory of accretion went nowhere. I don't need you to remind me. It still pains me.

MIRANDA
You don't want to be forgotten. Is that why you're here?

OTTO
I don't have a definitive answer. But if that's it, is it so terrible? To want remembrance?

MIRANDA
I understand where you're coming from. I'm afraid of the same thing.

OTTO
You're in the fullness of your life. You are a long way from the age of regret.

MIRANDA
Not true! I am filled with regret. Every waking moment. And I'm afraid of forgetting. Already, I am forgetting my mother – her sounds, her perfume. It's been ten years. I don't want this to happen with my father. I need to see him before my memory gets hazy. So you see, I don't have decades to wait on a theory. I just have "now."

OTTO
What you wish – could take a lifetime. There is a reality to science that you can only tap into through observation. You want to see what the stars see? But first, you have to understand them. Which means understanding fusion, hydrogen and helium-

MIRANDA

I don't want a physics course. *That's not what I'm looking for!* I want to talk to the stars! They keep secrets. They won't give me anything but teases of light.

OTTO

The stars have no thought or care about us.

MIRANDA

I need to see what they see.

OTTO

And you want what you want – right now.

MIRANDA

Yes.

OTTO

And the stars are not cooperating.

MIRANDA

Don't make fun of me.

OTTO

I look at the stars and want to know their origins. Their endings. You look at the stars and yearn for the fanciful.

MIRANDA

I looks to the stars and want to feel their inner fires. I want to know why they were placed impossibly far? So they could keep secrets? See the North Star? I bet it knows something. It always looked smug to me.

OTTO

And you know that, how?

MIRANDA

Instinct?

OTTO

The thing is Miss Miranda, instinct is not observation.

MIRANDA

The thing is Mr. Otto, it's a true human emotion and like the North Star, instinct exists and has a purpose. It's possible that is sees my father.

OTTO
It's been a useful star for navigational purposes. But as far as it having any knowledge of your father, I am afraid that is pure fancy.

MIRANDA
Did you know that the Paiute tribe believed the North Star had once been a mountain goat?

OTTO
Why, no. I had no idea. That never came up in my science classes.

MIRANDA
See? I know things, too. Actually my father told me this but now I know it, too. It was a favorite of his when he told stories around the campfire.

OTTO
I always thought campfire stories were about ghosts.

MIRANDA
Oh no – those scare me. He knew that.

(Beat.)

OTTO
All right. Tell me about the goat.

MIRANDA
He was called Nah-gah and he loved to climb. Anytime he saw a high peak, he climbed. He wandered the earth climbing mountains. Even if there was snow or sleet, he climbed. If he was hungry or thirsty, he climbed. The Creator was so enchanted of Nah-gah's commitment to climbing he thought, "This goat should have a place high up in the sky." And He transformed the goat into a fixed star that would serve as a lighthouse for people all through the ages. So *if* the North Star was a goat, and you know a goat has eyes, the North Star can see. Ergo, if stars can see the past, the North Star has eyes and can see my father. Ta da!

OTTO
Very sweet. *(Beat.)* It has no basis in science.

MIRANDA
I'm thinking there's a connection that we don't get yet. *Why not? What are stories but trying to figure out the unknown?* Don't be so dismissive! It's almost like you're afraid of the story. That it puts your precious science to blame because a story can reach out and grab the heart the way science cannot.

OTTO

You don't think science involves the heart?

MIRANDA

No, it's just brainy stuff that you have to memorize! Stories involve everything – thinking, emotion, growing pains, change, possibility.

OTTO

But – that is what science is to me.

MIRANDA

For real?

OTTO

For very real.

MIRANDA

I wish the Creator would place me in the sky. I would look down on you and your sinking ship and teach you that worth is not defined by absolutes. It cannot be boiled down to the laws of physics. And I would see my father born and grow until… who knows … maybe I could change the ending. The ending I put in action. The ending that fills me with regret.

OTTO

You get high marks for the fanciful. I'll give you that. But remember that reality and truth are as astonishing as your goat in the sky. The reality that something, all things, came from nothing still astounds me.

MIRANDA

"What is fanciful becomes reality." Didn't you say that?

OTTO

Don't get too wound up in the fanciful. While it can ignite a spark to encourage the science, it won't sustain you. It's the science that keeps us alive. It's the science that will allow my passengers to survive. They need food and warmth. Not stories of goats.

MIRANDA

I want to go back in time so badly, it's consuming me. I feel like this place offers me that chance. I just haven't tapped into it yet. Wouldn't you love a chance to go back and fix stuff? So your ship wouldn't sink.

OTTO

We are a forward-looking race.

MIRANDA

All the sadness, all the hurts – I don't feel it as much here. It's like they can't find me. Or maybe it's just so cold here, I'm numb. But I feel like I am just me here – untouched by grief.

OTTO
But it is here – where you can be touched.

MIRANDA
Maybe. I do feel the stars. I imagine a molecule in my body is saying, “Remember when we were up here together? Remember when you were in the stars with me?” Of course that was before the star blew up and its fragments found its way into my body. Who knows? Maybe one of those stars up there was my friend.

OTTO
Such a story. But again - that’s all it is – a story.

MIRANDA
But there’s some truth to it. There’s something in me that came from them.

OTTO
There is a lot in you that came from them. In a roundabout way.

MIRANDA
Maybe we return to them. That would give me a happily-ever-after.

OTTO
You could look at the fact that the universe even exists as a happily-ever-after.

MIRANDA
I want a forever connection – a circle. Not a line with a beginning, middle and end – I hate endings. Give me a circle.

OTTO
But the universe is not a circle. There was a beginning and there will be an end. Just as there will be an end to all the stars above us.

MIRANDA
If there’s an ending to everything – why isn’t there an end to sadness? At home, my sadness grew every day. Every memory, every thought stab like needles in my heart.

OTTO
Physics can explain some of that.

MIRANDA
Physics can’t explain my grief.

OTTO
Don’t be so sure. It’s been noted that if two particles interact with each other a lot – as you and your father did – even when they are separated, they remain connected. This is dependent on the

OTTO (cont'd)
meaningfulness of their connection. I suspect your connection with your father was filled with meaning.

(OTTO can act some of this out using two icicles, snowballs, supplies, whatever is handy.)

Now, watch. If Particle Number One gives Particle Number Two a kiss on the cheek,

(Maybe one icicle kisses the other icicle and OTTO says, "smooch.")

Particle Number Two may do a little jump for joy in response.

(Particle Two jumps.)

OTTO (cont'd)
Or maybe Particle Number One collides into something and is hurt and shows his hurt to Particle Number Two who responds by giving his friend a hug or a sad face to commiserate.

(OTTO does his best sad face.)

But if Particle-Number-Two dies…

(Okay, Particle 2 now has to die.)

… Particle-Number-One would continue to send off energy looking for particle-two.

(Particle 1 searches.)

MIRANDA
So I am Particle Number One right now - sending all this energy – to nowhere?

OTTO
Everything goes somewhere. Your energy could be converted into the grief you are feeling. Maybe you're absorbing your own energy and the grief is multiplied which is why you feel needles in your heart.

MIRANDA
This is actually sounding possible.

OTTO
The point is – the amount of energy in the universe is constant. It cannot be destroyed. But – here's the remarkable part – it can be transformed. For you and your father - the energy has been transformed. But it's still there.

MIRANDA
So I send out the memory of camping with my father and the energy returns to me by killing my heart.

OTTO
That's a … dramatic interpretation. But think on this, maybe each time you send out a memory, what returns to you will slowly be changed into gratitude that you had such a father.

MIRANDA
Right now I am caught in times where I am afraid to forget him but remembering hurts. But for some reason, remembering him here in the arctic doesn't hurt as much. Maybe that's why I feel safe here.

OTTO
It's a precarious safety I am doing all I can to have us rescued. The ice is sinking.

MIRANDA
But it's February. Winter.

OTTO
It's March.

MIRANDA
I came here in January. You told me it was February and now you are saying March? You're sounding inconsistent for a scientist.

OTTO
We are out of earth time and in Universe time. It varies. Moscow says rescue is coming and when I leave – you leave. Turn off your busy brain for a few moments. Immerse yourself in the sky while you can. The past, present and future are all there.

(OTTO and MIRANDA sit and watch the night sky.)

MIRANDA
Look at how bright some of the stars are. And then others are so dim – like they are shy. Hiding. Not wanting to be found.

OTTO
It has to do with distance. And of course their size.

MIRANDA
I suppose. But I like to think it's all the fault of the coyote.

OTTO
Not the goat?

MIRANDA

No. Definitely the coyote.

OTTO

Dare I ask – does this coyote have a name?

MIRANDA

Probably. But I don't know it.

OTTO

You're train of thought is full of surprises.

MIRANDA

Well, if the Fire-God wasn't so slow and methodical –

OTTO

- Fire-God?

MIRANDA

From the days of long ago and far away. When the earth was young. And dark.

OTTO

Let me get this straight. Once upon a time, right? There was a goat, a nameless coyote and a Fire-God. And stars in the sky.

MIRANDA

No. No stars yet. And the goat hasn't emerged. Remember I said the earth was young and dark? Keep up! I'm telling you about the time before the starlight. When nights were long and people kept bumping into one another because they couldn't see.

OTTO

Where was the moon?

MIRANDA

Oh – that's another story. Now shh. The sun had set and the outside was pitch black. People had been given fire,

OTTO

But that's another story?

MIRANDA

Yes. You really have a lot to learn. You couldn't keep a fire going all the time because the air would be too smoky.

OTTO

Is the coyote coming into your tale anytime soon?

MIRANDA

For someone who believes you need decades to work on a theory, you sure are not patient in the art of storytelling. The coyote enters the story when it is time. No more interruptions. Raise your hand if you want to say something. The Fire-God looked around at all the darkness and said, "This won't do. I must help my people."

OTTO

So, he gave them a coyote?

MIRANDA

Raise your hand.

(OTTO does so.)

MIRANDA (cont'd)

Is there a question?

OTTO

Did the Creator create the coyote?

MIRANDA

A long time ago.

OTTO

I don't understand.

MIRANDA

Because you keep interrupting. To continue. The Fire-God had a blanket of stars that was a gift from the Creator. That had always confused the Fire God because it did not come with any instructions. Why did the Creator give him a blanket of stars? And then he thought, "Aha! I am supposed to use them to light up the night." But there were hundreds, thousands maybe even millions of stars in the blanket.

(OTTO raises his hand.)

OTTO

If the Fire-God had studied science, he would have known that our Milky Way alone would have over 300 billion stars.

MIRANDA

The Fire-God had no formal science training. There was no "Physics God." He had to deduce knowledge from what was given to him.

OTTO

And that would be –

MIRANDA

The blanket of stars. The Fire-God carefully studied the sky and each night he would place some stars so that they would shine on different parts of the earth. He was quite methodical. And slow. Once a star was placed, he ignited it with his torch. This went on for some time. Night after night, the Fire-God dutifully worked on placing each star carefully in the sky. His work was noticed by the people on earth. But the night sky remained dim. He didn't know it but he was being observed by a coyote.

OTTO

Finally, the coyote!

MIRANDA

Hello! I'm speaking. The coyote liked the small twinklings coming from the sky and wanted more. He didn't understand why the Fire-God was doing his work so slowly. Finally, after weeks of watching the Fire-God, the coyote leapt up as far as he could and grabbed the blanket and shook it like a dog with a stuffed animal. He shook it and shook it until all the stars were flung every which way. The sky was littered with stars. There was enough light for the people to see at night. There were stars near and far. Some were grouped together and others were by their lonesome. Which is why the sky can look so haphazard at night.

OTTO

And it has nothing to do with the laws of the universe or physics.

MIRANDA

Of course not.

OTTO

It was all the coyote's doing.

MIRANDA

Amazing, isn't it?

OTTO

Actually, I will concede that it is. But/

MIRANDA

/there's always a "but" with you.

OTTO

Raise your hand if you want to speak. What if I told you that the physics is even more amazing? And this amazement is your future. You will learn such things – things we just had an inkling of when I was at the University. Quarks!

MIRANDA

Quarks? Sounds like a bird call.

OTTO

Quarks are everything. The stars, the planets, you and me and your father are all made out of tiny bits of matter. We love to say we are "star stuff" which is correct. But that phrase is so – poetical and lyrical – and you know – "nice." It's much more romantic than announcing we have the same make-up as a cockroach. Which we do.

MIRANDA

Somehow you just took away the magic I was feeling out here.

OTTO

The make-up of the roach is not exactly the same as a human but guess what? The molecules are made of atoms which make up everything. You. Me. And that pesky cockroach. But you know what's really amazing? Inside these atoms there are these tiny electrons buzzing around them and then – inside *the atom* – are you still with me – are these protons and neutrons and there's more. It's almost like those Russian nesting dolls that go one forever. Inside the protons and neutrons are these miniscule particles we call "quarks." You like words. You have to admit that it is a perfect word. It almost sounds like what it is. Say it with me.

(They sort of "quack it.")

MIRANDA

Quark!

OTTO

QUARK QUARK!

OTTO

All right. Enough quarking.

MIRANDA

You have a silly streak! That's a surprise.

OTTO

I had three sons. Much like you, they preferred silly faces and squawking noises to science. I adapted.

MIRANDA

I'm not a child who just likes silly noises.

OTTO

Good. Then I shall continue. Quarks are so tiny, we don't have a clue as to how to measure them. Because – get this – quarks are maybe ten thousand times smaller than the nucleus of the atom. Mind-blowing, right?

MIRANDA
I realize that for us – this is an invisible world but I need a visual. How many quarks would fit on the top of a pin?

OTTO
In my time it was estimated that the number of atoms on the top of a pin would be 10 to the twentieth power, so possibly 10 to the twenty-first power?

MIRANDA
But there would be an infinite amount of angels so in your theory angels are even smaller than quarks.

OTTO
But angels are not matter. You can't compare angels and quarks. It's like comparing sunlight with a kite. One has matter and one doesn't.

MIRANDA
I cannot wrap my head around that at all. Haven't you figured out by now that when it comes to physics – I'm on a "need to know" basis?

OTTO
You want a new theory. You want to know more. Understanding quarks is the future. And quarks have differences: There are your up- down quarks, your top-bottom ones and the heavier ones - strange quarks and the charm quarks.

MIRANDA
That explains us. I am clearly made from the charm quarks while you are made from the strange quarks.

OTTO
Yes, well … we are getting off topic. If you study particle physics –

MIRANDA

- I won't –

OTTO

- Hello! I'm speaking now. I'm wondering if you will find new ways to solve problems. Find answers I don't have. That's the future. Your future. You'll have a new way to question stuff. And maybe you'll get there. It's too late for me. I left this world in 1956.

MIRANDA
So you really are … dead… just like my father. Are you a ghost?

OTTO
I'm touchable so I don't think so. Maybe I'm quarks and particles in a new arrangement!

MIRANDA

I'd accept that theory.

OTTO

It was a joke.

MIRANDA

I didn't know you could joke with physics.

OTTO

Neither did I. Maybe I'm a fragment of your imagination.

MIRANDA

Why would I imagine you?

OTTO

Because you want to know more than you let on. Or maybe I'm a fractured piece of light from a long-ago star. How can that be? I have no idea. There's a new theory you could work on.

MIRANDA

I want a theory that will bring me to my father. You can be compelling, I'll give you that. But so far you are not giving me what I need.

OTTO

But I am what was given to you.

MIRANDA

By whom?

OTTO

Only you can answer that.

MIRANDA

Who are you to me? Let's figure that out. We don't need physics for that.

OTTO

If my father and your great, great, great grandfather were brothers – how many greats are we up to?

MIRANDA

Three.

OTTO

I think there's more. I think your father was three greats – so if you are the fourth "great" that would make you my fourth cousin or maybe my first cousin four times removed. I'm never sure.

MIRANDA
I thought you were a brilliant mathematician.

OTTO
Yes. But now we're segueing into genealogy and that was never my strong suit.

MIRANDA
So, we really are related.

OTTO
Indeed we are.

MIRANDA
And you're here.

OTTO
I certainly seem to be. Maybe you summoned me.

MIRANDA
How could I summon you when I didn't know anything about you? Unless … my father could have done this. But why?

OTTO
We have no way of knowing the answer.

(The lights change and dance.)

MIRANDA
Maybe the sky is giving an answer. Look! It's talking to us.

OTTO
The aurora borealis.

MIRANDA
Look at that color – and those shapes. My father used to say they were unborn children playing in the heavens. Can you see that? Little souls chasing each other in a game of tag.

OTTO
They are merely energy particle from the sun colliding with the Earth's magnetic field.

MIRANDA
I like my father's explanation better.

OTTO
It is sweet. What happens in your story? To those little souls playing tag?

MIRANDA

They are born, I guess.

OTTO

Do they remember playing in the sky?

MIRANDA

Probably not. Too bad. That would be a nice memory to have. Once you're born – the memories are hard.

OTTO

You tale is filled with wonder. But the reality is more astonishing.

(HE acts this out.)

OTTO (cont'd)

Light particles blown into the atmosphere! Look over the ocean!

(MIRANDA does so. The lights enhance his lines.)

OTTO (cont'd)

Now imagine the atmosphere – as an ocean – an ocean of air covering the earth. And as the light particles hit this ocean of air – the energy particles cause the gasses to glow – bringing us ribbons of color: violet! Blue! Red! Green! Science meets art creating watercolors –

MIRANDA

- A 3-D painting!

OTTO

Created by the natural world.

MIRANDA

I think if the sky can surprise and create like this it's a sign that we don't know everything. I think that what I want – could be possible. There must be a way to get a mirror up there shining on the earth as it was months ago. I just don't know how yet. But I believe the sky can give me one more glimpse of my father.

OTTO

You are a lot like me, aren't you? All ego and "I want." Suppose you do get a mirror up there – then what? Are you sure of what you'll see?

MIRANDA

I know what I want to see.

OTTO

That may not be the same thing.

MIRANDA

You're twisting everything. You hold out this life preserver and when I go to grab it – you snatch it away.

OTTO

I am offering you a life-line but you insist at grabbing at straws!

MIRANDA

I'm trying to take what you know and move forward.

OTTO

Do it, Miranda! Take everything I know and use it. Expand on it. Introduce it into your own time. You search for answers. I search for answers. Sometimes the answer you receive is not what you are searching for. Then what?

MIRANDA

You don't know everything! You think that a mirror in space would only show a reflection from earth after the mirror had been in place. But that's not necessarily true. It's only true if you believe it would never be possible to travel faster than the speed of light. But – if a telescope could see a mirror that is one hundred light years away and it was placed by someone who did travel faster than the speed of light – one could see into the past. It could happen.

OTTO

So all we need to figure out is how to move faster than the speed of light – many times over – without burning up. Is that correct?

MIRANDA

Yes. That's all.

OTTO

Well, if that's all -

MIRANDA

Don't! Maybe there will come a time when we are beamed places. Maybe there is a rearrangement of all your beloved particles – like Star Trek.

OTTO

Star – what?

MIRANDA

Never mind. I just think maybe we'll find a way of moving through the universe that doesn't require being propelled into space. Maybe we can change our atomic make-up – don't give me

MIRANDA (cont'd)
that face - I don't know – maybe your quarks will come out to play and help me – who knows? My theory is – when we get a mirror on a star – we will see the past.

(MIRANDA moves away. The ice starts to split apart. You can do this with lights. There is movement from the ice.)

OTTO
Miranda!

MIRANDA
Just because your theory didn't work doesn't mean mine never will!

OTTO
Stop!

MIRANDA
I'll do what I want! Just like you.

OTTO
You're going too far. The ice is cracking.

MIRANDA
I'm fine. I –

OTTO
You're going to sink.

(MIRANDA looks around and realizes OTTO is right.)

OTTO
Jump! JUMP!

MIRANDA
It's too far. I'll swim. I'm a good swimmer.

OTTO
No! The cold will shock you. You'll gasp. Your muscles freeze – I've seen it. Jump now!

MIRANDA
I can't. Come here.

(OTTO takes a running jump and lands near MIRANDA.)

OTTO
We have to get back on solid ice. Are you ready? We're going to take one long running jump.

MIRANDA

No!

OTTO

You can do this.

(ICE cracks.)

OTTO (cont'd)

NOW!

(Ice cracks. Sound of waves. Lights darken and brighten and darken.)

----------Optional Intermission ----------

(OTTO and MMIRANDA are on a new ice floe. OTTO is down on his knees, having trouble breathing. He takes long gasps as he tries to stand. MIRANDA gently keeps him down.)

MIRANDA

Don't move.

OTTO

Don't worry. I can't. It's the TB. I've had it since I was a child. I haven't had a flare up in years.

MIRANDA

Tuberculosis? Didn't they used to put you in sanitariums for that?

OTTO

They did. They loved sending me to the mountains in Austria. They were sure the air was better for me there. I did love it. I became quite a good mountain climber – much like your goat.

MIRANDA

The cold arctic air cannot be good for you.

OTTO

I've been warned to stay out of the arctic.

MIRANDA

Maybe you'd be better off exploring the mountains.

OTTO

What's to explore? They're discovered! They're populated! And impossibly busy. It's here that I feel my destiny. The expanse talks to me. It's here that I am most alive.

MIRANDA

And it's here that could kill you.

OTTO

Not yet. I won't let it happen yet. I have to get my passengers to safety, remember?

MIRANDA

Suppose what happens here changes what happens on the ice? Perhaps you don't make it off. Suppose my being here changes things.

OTTO

All the more reason for me to continue on my mission of getting my passengers to safety. Changing the past could be problematical. I think I am just having a small flare-up. A little rest and I'll be as good as new. I'm going to check on my people. I'll give you a little break to think. The arctic is truly a great thinking place.

(OTTO stands. He wobbles a bit. MIRANDA goes to him.)

MIRANDA

Otto?

OTTO

I'm fine. Don't nag. I should check on my passengers.

(OTTO coughs.)

MIRANDA

You're not fine and you're not going anywhere.

OTTO

Listen Doctor Miranda, I've been dealing with this for as long as you've been alive. I know when to take it easy and when I can walk around.

(*OTTO wobbles.)*

MIRANDA

Stop! Suppose you go off to your passengers and collapse and die? It will be my father all over again. Fast. No time to say good-bye. I'm not ready for another "sudden death" go-around.

OTTO

I won't –

MIRANDA

- You can't guarantee that. This mix-up, this encounter with you – it could end as suddenly as it began. I need – to know this time when there's an ending. I need to know when to

MIRANDA (cont'd)

- say good-bye. No more random disappearances! No more arbitrary gifts from the universe!

OTTO

All right, my caring friend. I'll rest here for a bit.

(*We hear a Russian lullaby – maybe it's just a music box. There are public domain lullabies available – with their recordings also in public domain. Consider: Russian Lullaby by Irving Berlin, Bayu Bayushki, Sleeping Beauty Waltz by Tchaikovsky or anything that strikes your fancy that you can do legally! MIRANDA and OTTO listen.)*

MIRANDA

Do you hear that? Music? From – where? The stars?

OTTO

My world seems to be calling to me. Prepare yourself. I won't be here much longer.

(*OTTO starts to nod off.)*

MIRANDA

Otto?

OTTO

There's some horrible dried beef in my backpack. Would you mind giving it to me? You're welcome to try it.

(MIRANDA takes a piece of the dried protein from the bag and hands it to OTTO but OTTO has fallen asleep. She tastes a small piece and makes a face – it is pretty horrible – and wraps it back up and throws it in the pack. Some papers start to spill out so she tries to organize them to get them back in the pack. She looks at them. There are maps, writings, notations. The music slowly segues into the sounds of waves and winds. MIRANDA holds the papers as she watches the sky.)

MIRANDA

Dad? I'm here. I'm waiting. Where are you?

(The wind grows. Miranda is a bit spooked and lets go of some of the papers.)

Dad? Is that you?

(Th papers scatter. MIRANDA tries to put all back together but everything is in a muddle and going every which way. MIRANDA tries to straighten everything in an orderly pile. Suddenly she stops. She carefully places one piece of paper on top of another. She takes

two pieces of papers and lets them collide and move apart. She does this a few times. It brings back memories.)

(OTTO wakes up.)

OTTO

Miranda?

MIRANDA

I'm sorry. I looked for food for you and then these spilled out and everything happened so fast – I made a great big jumble of a mess. I was trying to straighten it/

OTTO

I can do it.

MIRANDA

Please let me.

(She carefully places one paper on top of the other again.)

MIRANDA (cont'd)

What do you think about this?

OTTO

Rescuing two pieces of paper is not enough. We need to pile them all up.

MIRANDA

I'm not rescuing papers – they just made me think about something I read. What do you think about multi-verses? Have you heard of them?

OTTO

Is this one of your fanciful leaps your brain makes?

MIRANDA

Do you know about them?

OTTO

Yes. It's been mentioned since the dawn of time but never proven.

MIRANDA

Never proven yet. Otto! Maybe that's my theory. Maybe I can prove that exists. Maybe … just maybe … this piece of paper is a universe of its own and in this paper my father is not dead. He's picking me up from school and we're going out to dinner. And this piece of paper is the universe I'm in where I'm out of my time.

OTTO
This sounds more like a wish than a possibility. It's an unprovable theory. One cannot see a multiverse. There is no starting point.

MIRANDA
In your time it was unprovable. But things may change in my time. You know how you loved your theorizing? My father also loved to propose theories.

OTTO
Proposing theories is one thing. Proving them is another.

MIRANDA
I'm not done. Suppose our universe is finite? You said yourself, you don't know. And maybe when it was formed, other universes were being formed. Planets developed just like here but they're not here. They're in another universe. Maybe the laws of physics is the same everywhere but what is not the same are the choices people make. People are unpredictable.

(She takes out one piece of paper.)

MIRANDA (cont'd)
So on this paper, I am sitting with you right now discussing multiverses – like we're doing now. . But maybe I'm not just existing in our limited 3-D world but also on this paper.

(She takes out another paper.)

And on this other paper I made another choice back in August. And because of that different choice, my father is still with us.

(MIRANDA throws some papers into the air.)

OTTO
My papers!

MIRANDA
Look how they float and fly and sometimes bump into each other – but they're totally unaware of each other – just like our multi-universes. If they were aware maybe they'd lock into each other. Maybe they'd combine. But look at them *(throwing them up gain)* – they don't. But they're so close to each other, that when I send out a memory to the universe, maybe it doesn't come back as grief. Maybe that particle is small enough that it jumps into the other universe.

OTTO
You're not/

MIRANDA

/No, I won't be jumping into another universe anytime soon. I'm too big. See – I am understanding some of your physics. But maybe a particle seeps through – or one of your quarks. And those particle-quarks-whatevers develop just like in our universe but different choices are made. There are different outcomes. Maybe the multiverses are invisible to us just as atoms and quarks are.

OTTO

And you are figuring this out from understanding some of "my" physics.

MIRANDA

What do you think?

OTTO

I'm thinking … your choice isn't the only choice that could be different. Maybe your father or mother made some different choices…maybe they never met.

MIRANDA

That's not the outcome I want from the multiverse theory. Maybe there are a thousand multiverses – my dad making different choices, maybe my mom and of course, me. And in the "Me" multiverse, I'm still with my dad. The fact that there could be more than one outcome – is comforting.

OTTO

And it has a happily-ever-after ending which is what you want.

MIRANDA

Need. I need it so much.

OTTO

Even if it's not true.

MIRANDA

What's true is false, what's false is later proven to be true. Where did I hear that?

OTTO

I am trying to give you what you need.

MIRANDA

Or what you think I need. Particles. How the planets came to be. How does any of that relate to what I am going through?

OTTO

I thought if I gave you truths – beginnings - you could figure out how to move forward.

MIRANDA
Don't you understand anything? I'm trying to go back.

OTTO
Take a good hard look at the present. Your father is with you because you share the same make-up.

MIRANDA
I'm not interested in genetics.

OTTO
Let's return to the stars. This is where our discussion of stardust has truth. You both come from stars that long ago exploded and sent building blocks into the atmosphere – the oxygen in your lungs, the carbon in your muscles, the calcium in your bones – why even the iron in your blood was created by stars bursting.

MIRANDA
That doesn't mean we share the same oxygen or carbon or iron. Maybe my oxygen came from a different star than my father's. Maybe mine came from Cleopatra and his came from Julius Caesar.

OTTO
And where did mine come from?

MIRANDA
Brutus?

OTTO
But our DNA is inherited and it is comprised of stardust. So your stardust is also inherited.

MIRANDA
How does this help me see my father again?

OTTO
It helps you understand that he is always with you.

MIRANDA
I like my multiverse theory better.

OTTO
How nice that you like it. I've always liked coffee more than tea but I'm not sure that gives me the credentials to start a new theory.

MIRANDA
How about the mirror one? Come on, you have to give me credit. I've only been here a short time and I have come up with a new theory. Oh! Oh! I just thought of something!

OTTO

Does it have goats or coyotes?

MIRANDA

Better! It has satellites. I'll accept what you say that we can't really hang a mirror on stars because they are fiery.

OTTO

Thank-you for that.

MIRANDA

You're welcome. But Mr. Scientist – what about satellites? You didn't have satellites but we do. We have thousands and thousands of active satellites orbiting the earth right now.

OTTO

How many exactly? It's good to be precise.

MIRANDA

I have no idea. But - what if we could hang a mirror around the satellites to travel around the stars? If we could do that, maybe we could see a glimpse of the past. I mean – we landed on a comet! Did you know that? How cool is that? Who knows what else we could do?

OTTO

You do live in an exciting time. Yes, that is pretty "cool."

MIRANDA

I know! Imagine a world where these giant mirrors float through space on these satellites. They're all at different angles and distances and when you're really hurting, you can dial up these images from the past and look at other times –

OTTO

- Wouldn't that make you hurt more?

MIRANDA

No. They'd bring them to light. We could see the truth. You like "truth," right? I'm starting to doubt myself. Those camping trips, his stories. Every day those memories move further away. You know how you say the universe is expanding and other galaxies are further away all the time? My memory is like that. Every morning, what I remember is further away and I can't always grasp it. But if there was a universe-memory-bank – of every memory – from every speck of stardust – I could look it up. And see the truth.

OTTO

You're sounding fanciful again.

MIRANDA
Maybe. But physics is starting to look like a bunch of science-fiction theories that people dreamed up and *then* set out to prove. Maybe you do need to dream the dream first. I mean the theory that everything went wacko over thirteen billion years ago and just expanded at a huge rate is pretty accepted now. But someone dreamed it first. People made fun of those dreaming scientists, didn't they? But the dreamers worked their whole life to prove it. Some even were killed for their theories. That could be me – dreaming of a universal-stardust-memory-bank and working my whole life to make it come true. But I'd prefer not to be executed for my theory.

OTTO
I admit it's not a bad way to spend your life.

MIRANDA
Of course, I could be like you. It could wind up with one of those discarded theories. I could work my whole life on something that will never work.

OTTO
So you have to love the process.

MIRANDA
Even if the process comes to nothing?

OTTO
I think it always comes to "something." Wrong answers can lead to correct ones. Today my theory of accretion carries some weight. I had the beginnings right. Who knows? Maybe you will have the beginnings right?

MIRANDA
I'm starting to understand why trying to propose a new theory can take years. And new theories do scare people.

OTTO
Funny, but that is something which I never understood. We have always thirsted for knowledge and when it finally comes – you'd think it would be welcome. But it seems to upset the hierarchy. It is true that many scientists have died because of their theories.

MIRANDA
Yeah, I'd like to skip that part.

OTTO
Agree. In the end, the science comes out. It refuses to stay hidden. Even though sometimes it rears its head before people are ready for it - but in the end – it wins.

MIRANDA
So you're not discounting my theory.

OTTO

I still see your memory-theory as more metaphysics than physics. But, I will concede that it's possible that your pseudo-science could develop and some of it may develop into possible science.

MIRANDA

Thank you!

OTTO

And it's an improvement over the multiverse theory.

MIRANDA

Wait. I didn't say I was letting go of it. Who's to judge which theories have merit? Remember the earth used to be flat.

OTTO

But they believed that without proof.

MIRANDA

People believed that the sun revolved around the earth.

OTTO

Again with no proof.

MIRANDA

I don't know what's true. And neither do you. A stardust-memory bank? Maybe. Multi-verses. Again – maybe. There's so many possibilities – including those that I haven't thought of yet.

OTTO

I wish I was here long enough to know what theories you will come up with later.

MIRANDA

For real?

OTTO

For very reals.

MIRANDA

That's why I need to stay here. With you. To learn – to question – to theorize. You'd like that, wouldn't you?

OTTO

I would.

MIRANDA
So, maybe I could go back with you and if I go back with you – maybe I'd still be alive when my father was born. Maybe I really could see him one last time.

OTTO
You need to go forward.

MIRANDA
I need this. I need my father. Please. At least to apologize. And then try to say good-bye.

OTTO
What you think you need is not necessarily what you truly need..

MIRANDA
I need to find out if somewhere in my future, there's hope. That I didn't kill my father.

OTTO
But – it was the truck. The truck that sped through the light.

MIRANDA
Wait! How do you know that?

OTTO
I seem to know what you know.

MIRANDA
My father was in that intersection because of me.

OTTO
It was an accident – random. Unfortunately our universe can be all too random.

MIRANDA
You don't know about my choice after summer break. Dad was going to take me back to college. I said, "no." Chelsea was picking me up so he wouldn't have to make that long drive. I've kept this inside me for months – because I know if I had let him drive me, he'd still be here. And not at that intersection. He wouldn't be dead. And maybe in this sheet of paper – this multiverse – he did drive me back to school and he's still with me today.

OTTO
Maybe there would have been another light – another truck and you'd both be gone.

MIRANDA
We would have been safe – on the highway.

OTTO
Listen to yourself. You don't know. You're taking the blame for something beyond your scope –

MIRANDA
We've done the drive before – always without incident. I made the change – I caused this!

OTTO
Miranda – listen –

(MIRANDA moves away from OTTO.)

MIRANDA
I'm done listening. I need to find my way back to that moment. To my father. To tell him I'm sorry. That's all. I can't change anything but I can apologize. I can say, "I love you" one more time. Somewhere out there is another point in time – somewhere – he's there – waiting. He's waiting for me, Otto. I feel it. And I need to meet up with him – connect with him – discover a way to see him *one last time!*

Daddy! Are you here? Tell me you're here. In the sky. Finally flying. Tell me!

OTTO
Miranda!

(Sounds of wind and ice cracking.)

MIRANDA
Leave me alone. Let my father find me.

(MIRANDA looks around and finally takes stock in what she sees. An airplane flies overhead.)

OTTO
Miranda!

MIRANDA
The ice is sinking. Don't come any closer.

OTTO
I won't.

MIRANDA
Well, that's a nice change.

OTTO
The rescue places are coming. Another plane will come and then another plane. And when all my stranded passengers have made it off the ice, I will leave. We will all be gone soon.

MIRANDA
Not yet. I need the sky. This sky. I need to see my father fly.

OTTO
Your time on the ice is ending. You have no choice. It's time to go home.

MIRANDA
Home. I remember that as soon as I reached school, there was a phone call from my grandmother. "Come home." And I did. That night the sun set at its usual time. The stars came out. My world was shattered. There was a moon. And the universe didn't blink. It doesn't blink, does it? It continues its own existence and cannot react to every happening on this little speck we call earth.

(Pause.)

And even if there are multiverses, I am grounded to this one, aren't I?

OTTO
Yes.

MIRANDA
And I never will see my father again.

OTTO
No. *(Beat.)* I'm sorry.

MIRANDA
He was taking flying lessons. He wanted to get his pilot's license at the same time that I graduated from college. We planned on a double celebration. When I landed here, I thought this was my opportunity. To properly say good-bye.

OTTO
Is that really what you want? Another good-bye? You've been saying good-bye for months. If he was here – right here just as I am – wouldn't it hurt too much to start the process all over again?

MIRANDA
No. Because then I'd be like your energized particles – all my grief would have a place to go.

OTTO
And the energy from your father returning to you? What about his sadness at leaving so early?

MIRANDA
I didn't think of that.

OTTO

And I shouldn't tell you what to think. But I am here now and I will be leaving. And I intend to say good-bye.

MIRANDA

Everyone leaves.

OTTO

I am leaving with gratitude to have met you and shared this time of theorizing and sky-gazing with you.

MIRANDA

The universe may owe me nothing but it let me feel him here. On the ice – in the starlight. I think my flight of fancy has some accuracy to it.

OTTO

I feel things here, also. Maybe that's why I return to the arctic again and again. To feel like I am part of the universe – not just an accident that exists because it exists. I was thinking about your stories…

MIRANDA

Don't start!

OTTO

Pay attention. I'm talking. There was a story my mother used to tell. About a young man's quest for truth. He searched for years looking for truth. In mountains, forests, deserts. And after many years, he finally found her. She was a wise old woman, with hair down to her ankles. Impossibly wrinkled and seemed to be as old as the universe itself. The young man stayed with her and learned many things that were true.

MIRANDA

Particle physics?

OTTO

Definitely.

MIRANDA

The Theory of Accretion?

OTTO

Probably not.

MIRANDA

Quarks?

OTTO

Stop interrupting! When it was time to leave, the young man who was not so young anymore thanked the wise woman and asked her if she had any words of wisdom for him to bring to the world. And she answered, “Tell them that Truth was generous and wise with her teachings. And when you mention me, please tell everyone that I was very young and extremely beautiful.”

MIRANDA

This is your story? That Truth lied? Or truth has variations?

OTTO

I am realizing that Truth also embodies humanity. Just as stories do. And from what I have observed, there are many nuances that come with the human condition. Science is absolute. But our truths change as we learn more. Will we ever know the truth of our meeting? And in the end, does it matter?

(OTTO takes her hand.)

OTTO (cont’d)

There was a time when my passengers started swiping at each other. They were tired and cold and quite frankly bored. One woman decided to share her recipe for Kasha and soon everyone was chiming in with their own variations. That lead to their personal family stories and soon the time after dinner became “story hour.” You and your father are right about stories. They connect us. As closely as our shared stardust.

MIRANDA

Thank-you for that.

(Jet sounds. But it’s different than the first plane sounds. It’s a modern Prop plane.)

OTTO

That’s my call. But it’s different than last time. It’s a new plane – I’ve never seen one like it. It’s lighter, quicker. Quieter.

MIRANDA

It looks like the plane my father took lessons in. It’s not likely but possible I guess.

OTTO

For real?

MIRANDA

For very reals.

(Wind sounds, plane sounds, waves crashing, starlight blazing and fading. In the chaos, OTTO is gone. Airplane sounds. MIRANDA studies the sky.)

MIRANDA (cont'd)

Dad? Otto?

(MIRANDA is back on the cliffs above Lake Superior. She gets her father's urn.)

MIRANDA

Safe travels to you both. I love you.

(Waves crash. Wind howls. Airplane sounds. MIRANDA scatters the ashes.)

BLACKOUT

END OF PLAY

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