

*Greatest Hits, volume 1*

The following were by the far the best two dialogues submitted in response to Exercise 3 on Homework 1.

**Friend:** Oh, X, can you help me figure out these quantifiers for 280, I have no idea what the difference is or what Patrick is talking about!

**Me:** Sure, you know what the symbols look like right?

**Friend:** Yes, but I don't know what they mean!

**Me:** It's OK. Write them down and we will figure it out together. [After friend writes basic symbols down] Great! Lets start with universal statements. This is like saying "for every sunrise there is a corresponding sunset." The statement has to *always* be true.

**Friend:** Oh so like saying "For all cheesy math jokes told at faculty meetings math professors always laugh."

**Me:** Well, that would work, but what if there's one professor out there at some faculty meeting that doesn't laugh it makes your statement false.

**Friend:** Besides the fact that that would never happen, your saying one example in a million that's false will mess up everything in a universal statement?

**Me:** Yes, it will, but that's why we have the second statement. It's called an existential. It means that there is one example of what your trying to prove. So instead of saying all professors, you say that there exists a professor who will laugh at the jokes told during a faculty meeting. This way what you say will always be true.

**Friend:** Cool, so universal has to always be true, like the absolute value of any number is positive. And while an existential is correct it does not apply to all possibilities.

**Me:** Right, great job! Let's go to class.

Ring, ring, ring. We see Ted calling Janet frantic over his 280 course:

**Janet:** Hello?

**Ted:** Janet, I have a problem.

**Janet:** What? Are you OK? What is it?

**Ted:** It's pretty bad. You may want to sit down for this.

**Janet:** Ted, I'm sitting. Now please tell me.

**Ted:** Today in 280 [pause] I didn't understand anything about the universal and existential quantifiers.

**Janet:** Anything?

**Ted:** Dude, ANYTHING!

**Janet:** Well you have certainly called the right person; I was born with two brains. Count 'em, two!

**Ted:** Really?

**Janet:** Yes, but back to quantifiers. I'm sure you feel like your in some sort of mathematical dyslexic nightmare with giant upside down A's and backwards E's, right? [Note: dyslexia is a serious disorder]

**Ted:** OK, that's exactly right. You know my hell.

**Janet:** I know that I know; you don't have to tell me I know; remember I have two brains.

**Ted:** Sorry, jeez.

**Janet:** Alright Ted I'll give you the skinny. First let's forget about all the symbols and put universal and existential quantifiers in terms of something your puny man brain will understand.

**Ted:** Let's do it! [oblivious with excitement]

**Janet:** Let's say you have a group of hormone-crazed teen boys in a room that we'll call  $\mathbb{R}$ , for now. If well-known campus hottie Leila is introduced into room  $\mathbb{R}$ , surely *all* the boys will respect Leila?

**Ted:** Duhh, she's a campus hottie. That's so respectable.

**Janet:** Ok, so *all* the boys in room  $\mathbb{R}$  fulfill the characteristic that they as individuals respect Leila. That is what we would call a universal quantifier. We have a statement: People respect Leila. This trait is universal in our set of boys because all of them possess that trait.

**Ted:** Wow, your brains are good. I think I get it. What about existential quantifiers, though?

**Janet:** Well this one might be a little abstract for you Ted, but put yourself in Leila's shoes in the same situation.

**Ted:** She's not wearing heels is she? Hmmm I think I know where this one is going.

**Janet:** Never mind the shoes Teddyboy. Lets just say Leila is single and looking for a date in this room of boys, but let's also say she's really picky.

**Ted:** Psssh, prude.

**Janet:** Listen, Ted! She's not a prude! She just only likes guys named X. I can relate to her. Fortunately in our room  $\mathbb{R}$  there exists a guy named X who fulfills her characteristic of only dating guys named X. Fortunately for her he's really awesome. Either way this is our existential quantifier for our room of boys in relation to Leila. Do you get it?

**Ted:** It's coming to me. There is some bro named X in our group of bros that Leila will date because his name is X. She won't date everybody in our set, but she will date him because he has what she wants in a guy?

**Janet:** I think you have it.

**Ted:** 1970 Pontiac Firebird. The car I've always wanted and now I have it. I rule!