Deductive, Inductive, and Abductive Arguments

**Deduction** – A method of reasoning by which a conclusion follows (or is meant to follow) *necessarily* from the premises.

**Induction** - A method of reasoning by which one generalizes from a series of instances.

**Abduction** - A method of reasoning by which one accepts a conclusion on the grounds that it explains the available evidence.

**Deductive Arguments:**

If Betty skied over 156 MPH, then she broke the speed record.
Betty skied at 159 MPH.
So Betty broke the speed record.

All men are mortal.
Socrates is a man.
Therefore, Socrates is mortal.

If Bush is the president of Russia, then Bush is a communist.
But Bush *is* the president of Russia.
So Bush is a communist.

If Bob didn’t put my wallet back in my locker, then he’s a thief.
Bob *is* a thief.
So Bob didn’t put my wallet back in my locker.

Either God exists or the moon is made of cheese.
The moon is not made of cheese.
∴ God exists.

Either God doesn’t exist or the moon is made of cheese.
The moon is not made of cheese.
∴ God doesn’t exist.
Inductive Arguments:

I’ve seen plenty of crows, and all of them have been black. So I bet all crows are black.

I’ve seen plenty of crows, and all of them have been black. Mom is giving me a crow (that I haven’t seen) for my birthday. The crow Mom is giving me is black.

Most of the Italian cars my friends own have had electrical problems. This Italian car that Julie is buying will probably have electrical problems.

The materials that I’ve tested become darker when they get wet. All materials become darker when wet.

Our next president will probably lie to the public since most so far have.

Cats, dogs, and horses are scared of loud noises, so rats probably are too.

Maria will no doubt get the flu now. She usually does when it snows.

From what I’ve seen kids are scared of cockroaches.
Abductive Arguments (a.k.a. “Inference to the Best Explanation”):

All stones, sticks, etc. stay on the ground when they lie there.
Objects move to the ground when unconstrained.  
Smoke moves to the sky when unconstrained.
When unconstrained, things move because they want to.

Mom’s car is at home even though it’s only 2:30pm.  
Mom must have taken Dad’s car to work today.

All crows that I have seen are black.  
Other birds are colored.
Crows are missing some ingredient in their diets.

All crows that I have seen are black.  
Other birds are colored.
Crows must nest in areas with much coal.

Tracy used to talk about my boyfriend a lot.  
Tracy never talks about my boyfriend any more.  
For some reason Tracy must be purposely avoiding talking about him.
Tracy and my boyfriend are dating without telling me.