1.3-1.4 Describing and Critiquing Arguments and Logical Fallacies

Group Activity

1. Determine whether each argument is inductive or deductive and explain.

a. All cats have a keen sense of smell. Fluffy is a cat, so Fluffy has a keen sense of smell.

b. All brown dogs in the park are small dogs. Therefore, all small dogs are brown.

c. My friends who are in college eat pizza. Pizza is affordable. Therefore, all college students eat pizza.

2. Draw a Venn diagram for each deductive argument and determine whether it is valid and sound. (Problems adapted from David Lippman http://www.opentextbookstore.com/mathinsociety/index.html)

a. Premise: All cats are mammals
Premise: A tiger is a cat
Conclusion: A tiger is a mammal

The conclusion is valid/invalid
The conclusion is sound/not sound

b. Premise: All firefighters know CPR
Premise: Jill knows CPR
Conclusion: Jill is a firefighter

The conclusion is valid/invalid
The conclusion is sound/not sound

c. Premise: Some cows are brown
Premise: Fido is not a cow
Conclusion: Fido is brown

The conclusion is valid/invalid
The conclusion is sound/not sound

d. Premise: All PCC Students Live in Portland
Premise: Trung is a PCC Student
Conclusion: Trung lives in Portland

The conclusion is valid/invalid
The conclusion is sound/not sound

e. Premise: If you live in Portland, you live in Oregon
Premise: Cara does not live in Oregon
Conclusion: Cara does not live in Portland

The conclusion is valid/invalid
The conclusion is sound/not sound

1.4: Logical Fallacies

A **logical fallacy** is a type of flawed or misleading argument.

3. We are going to study six common fallacies (but there are many more that you can find on the internet). The fallacies are listed on the yellow and red cards (like fútbol or soccer penalty cards) with their descriptions on the back. Match one example card to each fallacy and write the name in the space provided.

6 Common Logical Fallacies

Fallacy	Description	Examples
	There is something wrong with the person or group making the claim, so the claim is not true.	"Vote against the healthcare bill because 'Lying Laura' supports it."
	There is no proof that the claim is true; therefore, it is false	"No one has proven it isn't Bigfoot in the photo, so it must be Bigfoot."
	An expert says the claim is true; therefore, it is true.	"Oprah Winfrey says Weight Watchers works so it must be very effective."
	A and B are the only options. A is false; therefore, only B can be true.	"Either those lights in the sky were an airplane or aliens. There are no airplanes scheduled for tonight, so it must be aliens."
	Presenting an oversimplified or distorted view of an argument and attacking the misrepresentation.	"Senator Khouri has proposed reducing military funding by 10%. Apparently, she wants to leave us defenseless against attacks by terrorists."
	A came before B; therefore, A caused B.	"Today I wore a red shirt, and my team won! I will wear a red shirt every time they play to make sure they keep winning."

4. Identify the type of logical fallacy in each example

a. The Association for Family Values has endorsed Ms. Burke, so you should vote for her.

b. Coyotes must be extinct, since I haven't seen any for five years.

c. "You don't drink Coke, so you must not consume caffeinated drinks."

d. "People should avoid seeing the movie *Star Wars* because Jan was diagnosed with strep throat the next day after she saw it, and I got the flu a few days after seeing that same movie."

e. **"**The failing New York Times endorsed "Mr. Cheng, but he is a moron who doesn't know what he is doing. Don't vote for him."

<u>More Practice</u>

1. Draw a Venn diagram for each deductive argument and determine whether it is valid and sound. (Problems adapted from David Lippman http://www.opentextbookstore.com/mathinsociety/index.html)

a. Premise: If you pull the fire alarm you will get in big trouble
Premise: You got in big trouble
Conclusion: You must have pulled the fire alarm

The conclusion is valid/invalid
The conclusion is sound/not sound

b. Premise: All chocolate bars contain nuts
Premise: This bar is made of chocolate
Conclusion: It must contain nuts

The conclusion is valid/invalid
The conclusion is sound/not sound