**Critical Thinking**

**Tutorial 9: Informal fallacies**

**Exercise 1:** Ambiguous statements are ones that have multiple meanings. For example, the sentence “*I crashed into a bank”* could mean that I crashed into a financial institution or that I crashed into a river bank. Identify the two possible interpretations of these Newspaper headlines.

1. Hospitals Sued by 7 Foot Doctors

*Is it that the hospitals were sued by 7 different people who all happened to be foot doctors?  
Or is it that the hospitals were sued by a group of doctors that all happened to be 7 foot tall?*

1. Stolen Painting Found by Tree

*Did the tree find the painting?   
Or was the painting found next to a tree?*

1. Grandmother of Eight Makes Hole in One

*Was the grandmother playing golf and sunk the ball in one shot?  
Or did she gouge a hole in one of here grandsons?*

1. Two Sisters Reunite After Eighteen Years at Checkout Counter

*Had the sisters not seen each other for 18 years before bumping into each other at a checkout counter?  
Or did they spend 18 years at the checkout counter before they reunited?*

**Exercise 2:** The philosopher Daniel Dennett coined the term *‘Deepities’* to refer to seemingly profound statements that equivocate between two meanings. One meaning is true, but trivial. The other meaning is false but would be earth-shaking if it were true. Identify the two meanings of the following *deepities.*

1. Love is just a word

*The word ‘love’ is a word. Much like the word ‘cat’ is just a word. ‘Love’ starts with ‘l’ has four letters. (True but trivial)The word love doesn’t refer to anything real. There is no such thing as love. (False but would be earth-shaking if true.)*

1. The theory of evolution is just a theory

*The theory of evolution is a scientific theory. (True)  
The theory of evolution is just a guess: it’s not well-established science. (False)*

1. Age is just a number

*You are some number of years old (True).  
All there is to aging is the number of candles on your birthday cake. (False – trust me)*

1. If a tree falls in the woods and no-one is around to hear it, does it make a sound?

*This one equivocates on the word ‘sound’. A tree falling in the woods certainly creates vibrations in air which would be heard if someone was around to hear it.*

*But if no one is around to hear it obviously it doesn’t get heard.*

**Exercise 3:** Identify the problems with the following arguments. Which informal fallacies do they commit? Explain why they are a problem for the argument.

1. Prof. Jones: "The university just cut our yearly budget by $10,000."   
   Prof. Smith: "What are we going to do?"   
   Prof. Brown: "I think we should eliminate one of the teaching assistant positions. That would take care of it."   
   Prof. Jones: "We could reduce our scheduled raises instead."   
   Prof. Brown: "I can't understand why you want to bleed us dry like that, Jones."

***Straw man:*** *Brown’s last claim massively distorts what Jones said!*

1. If we pass laws against fully-automatic weapons, then it won't be long before we pass laws on all weapons, and then we will begin to restrict other rights, and finally we will end up living in a communist state. Thus, we should not ban fully-automatic weapons.

***Slippery slope:*** *Supposes that there will be an inevitable slide from passing laws against fully-automatic weapons to living in a communist state!*

1. Animal rights activists complain that biomedical research laboratories torture and abuse animals. But what about this: pet owners abuse and beat their pets all over this country every single day. In fact, some studies say that as many as 25% of pet owners kick or beat them on a regular basis –it’s enough to make you sick.

***Red herring:*** *the point about pet owners is irrelevant: the issue here whether the animal rights activists’ complaints are justified, and the claim about pet owners does nothing to refute that claim.*

1. Jill: "We should clean out the closets. They are getting a bit messy."   
   Bill: "Why, we just went through those closets last year. Do we have to clean them out everyday?"   
   Jill: "I never said anything about cleaning them out every day. You just want to keep all your junk forever, which is just ridiculous.“

***Straw man:*** *In this case, both parties criticize each other for claims they never made!*

1. You can never give anyone a break. If you do, they'll walk all over you.

***Slippery slope:*** *Even the smallest concession to others will mean that you are taken advantage of.*

1. If you’re already logical, then studying logic is unnecessary; but if you’re not logical, then you can’t understand what it’s about anyway, so it’s futile. So studying logic is either unnecessary or futile.

***False dilemma:*** *Implicitly assumes that either you’re logical or you’re not logical.*

1. Anti-government demonstrations must be stopped! There is a simple reason why. Although we support free speech, gatherings in defiance of the government cannot be tolerated.

***Circularity:*** *The argument essentially tells us that demonstrations must be stopped because gatherings in defiance of the government – i.e. demonstrations – are intolerable.*

1. We've got to stop them from banning pornography. Once they start banning one form of literature, they will never stop. Next thing you know, they will be burning all the books!

***Slippery slope:*** *Once pornography is banned, censorship of all kinds of books is inevitable.*

1. Senator Jones says that we should not fund the attack submarine program. I disagree entirely. I can't understand why he wants to leave us defenseless like that.

***Straw man:*** *Senator Jones never said he wanted to leave anyone defenseless—nor does this follow from the claim that attack submarines should not be funded.*

1. I have seen the benefits of regular exercise on my health. Some people think these benefits are imaginary, a concoction of Jane Fonda’s to sell more tapes; but I can assure you otherwise!

***Circularity:*** *I can assure you I have seen the benefits of regular exercise. Why? Because I have seen them.*

1. I’ll have to decide between going into debt for this new stereo system or doing without music for a while. But I couldn’t go without music, so I guess I’ll break out the credit card.

***False dilemma:*** *Is that the only available stereo system in the universe? Is there really no other solution?*

1. Logic teaches you how to argue. People argue entirely too much. Therefore we don't need to teach people logic.

***Equivocation:*** *“argue” is being used in two different sense (the everyday sense and the technical sense in which an argument puts forth some reasons for accepting a claim). If more people knew how to argue in that technical sense, we would likely have less – or perhaps just more substantial – arguments in the everyday sense.*

1. **A:** How could the universe be 6000 years old when we know the speed of light, the distance of astronomical objects (13+ billion light years away), and the fact that the light has reached us?

**B:** 6000 years is not a firm number.  The universe can be as old as about 10,000 years.

**A:** How do you figure that?

***Red herring:*** *B has successfully avoided a potentially devastating objection to their claim by introducing a new topic for debate: shifting the young-earth creation timeline where it does not necessarily coincide with the Bible. But this just distracts attention from the actual problem.*

1. An animal is human if and only if it has human parents.

***Circular definition:*** *The terms that stands in need of explanation – being human – is part of the definition.*

1. The average household in Australia consists of 2.53 person. This is an average household. Therefore, this household consists of 2.53 persons.

***Equivocation:*** *“average” is being used as a mathematical term and in the sense of “ordinary”.*

1. For sporting success you need a balanced diet – and loads of energy. As everyone does, every day of their lives. And one of the cheapest ways of getting the energy you need is with Tate and Lyle’s pure British-refined sugar.

***Equivocation:*** *between sugar calories and energy*

**Exercise 4: Find your own informal fallacies!**

Now look for your own examples in the news and on social media. The links in this section should give you some inspiration if you don’t know where to start. Discuss them in small groups and report back to the class.

For examples of how informal fallacies are used for science denial and in the debate on climate change, see

<https://www.skepticalscience.com/history-FLICC-5-techniques-science-denial.html>

<https://www.skepticalscience.com/argument.php>

For a list of insults uttered by Donald Trump, compiled by the New York Times, see <https://www.nytimes.com/interactive/2016/01/28/upshot/donald-trump-twitter-insults.html>