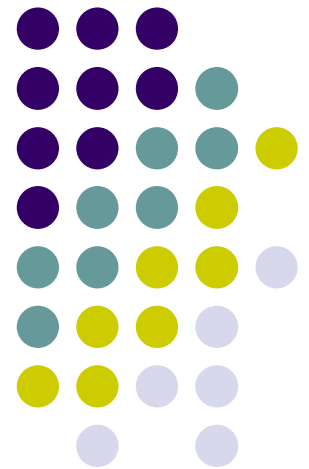
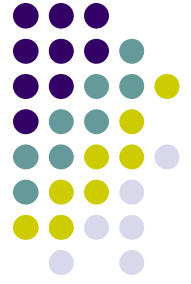


FALLACIES

based on *Understanding
Arguments* by Fogelin & Sinnott-
Armstrong





- | When inferences are defective, they are called **fallacious**. Some defective styles of arguing get repeated over and over, and then we have an argumentative **fallacy**.



Fallacies of clarity

- | Clarity depends on context
- | **Vagueness**: arises when a concept applies along a continuum or a series of very small changes
- | The argument from the heap: the argument seems to depend on the assumption that a series of insignificant changes cannot be equivalent to a significant change



The argument from the heap

A man with zero hairs on his head is bald.

If a man with zero hairs on his head is bald, then a man with 1 hair on his head is bald.

If a man with 1 hair on his head is bald, then a man with 2 hairs on his head is bald.

...

...

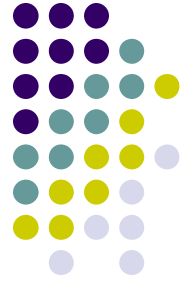
If a man with 9999 hairs on his head is bald, then a man with 10000 hairs on his head is bald.

A man with 10000 hairs on his head is bald.



- | As with all paradoxical reasoning there are three suspects: the premises, the reasoning itself and the conclusion. In order to avoid the absurdity one must either:
 - (a) deny the apparent falsity of the conclusion and accept it as true;
 - (b) reject the reasoning as invalid; or
 - (c) reject one or more of the premises

(a) Accepting the conclusion



Accepting the conclusion seems to be a rather desperate move.

One grain does not make a heap.

If n grains do not make a heap, then $n+1$ grains do not make a heap.

10000 grains do not make a heap.

| the conclusion is that there are no heaps, no tables, no planets and so on.

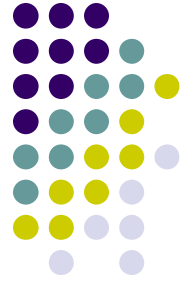


A man with zero hairs on his head is bald.

For every n , if a man with n hairs on his head is bald, then a man with $n+1$ hairs on his head is bald.

A man with 10000 hairs on his head is bald.

Slippery-slope arguments



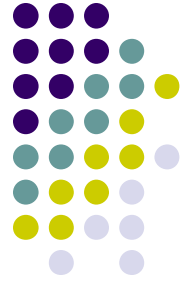
- | ***Conceptual slippery-slope arguments:***
exploit borderline cases, but reach different conclusions; inch their way through the borderline area in order to show that there is no real difference between things at opposite ends of a scale.



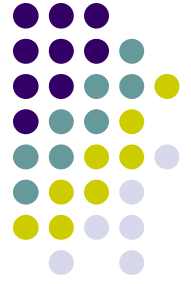
- | *Salt crystal* (nonliving) is similar to other, more complex crystals, and these crystals are similar to certain *viruses*. A virus is on the borderline between living and nonliving things. It does not take nourishment and does not reproduce itself. Instead a virus invades the reproductive mechanisms of the cells, and these cells then produce the virus. As viruses become more complex, the differences between them and „higher” life forms become less obvious. Through a whole series of small transitions we finally reach a creature who is obviously alive: *Barack Obama*. We get a conceptual slippery-slope argument when we draw the following conclusion: There is no important difference between living and nonliving things.



- | The argument *depends on the following principles*:
 1. We should not draw a distinction between things that are not significantly different.
 2. If A is not significantly different from B, and B is not significantly different from C, then A is not significantly different from C.
- | When many small differences make a big difference, such conceptual slippery-slope arguments are fallacious.



- | **Fairness slippery-slope arguments**
- | The differences that exist between the cases do not make it fair to treat those cases so differently.
- | A fundamental distinction between passing grades and failing grades, a person who barely passes a course does not perform very differently from one who barely fails a course; yet they are treated very differently (the claim is not that there is no real difference between passing and failing \Rightarrow that would be a conceptual slippery-slope argument)



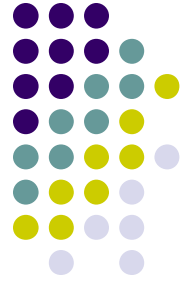
- ***Causal slippery-slope arguments***
- In these arguments the claim is made that, once a certain kind of event occurs, other similar events will also occur, and this will lead eventually to disaster (*domino arguments, parades of horror*).
- *The US government to justify its intervention in Vietnam in 1960s: if the Communists took over Vietnam, they would take over Cambodia, the rest of Asia, and other continents, until they ruled the whole world.*



Replies:

- | To deny that the supposed horrible effects are really so horrible
- | To deny that such horrible effects would follow
- | A combination of these
- | *Are any of the claimed effects really that bad?*
- | *Are any of these effects very likely?*
- | *Do these dangers outweigh all the benefits of what is being criticised?*

Ambiguity



I *Cardinal:*

adj. 1. of basic importance, chief, main, primary; 2. of cardinal red colour;

noun. 1. an ecclesiastical official of the RCC ranking next below the pope, 2. a bright red; 3. any of several American finches of which the male is bright red.

I An expression in a given context *is ambiguous* if and only if it is misleading or potentially misleading because it is hard to tell which of a number of possible meanings is intended in that context.



- I In a context where the use of a word is *ambiguous*, we do not know which of the two meanings to attach to a word, whereas in the context where the use of a word is *vague*, we cannot attach any clear meaning to the use of the word.



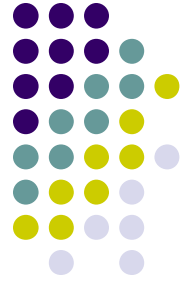
- | Ambiguity – **semantic** (ambiguity of individual words) and **syntactic** (amphiboly)

The conquest of the Persians

Only sons marry only daughters



- | **Disambiguating** – rewriting a sentence or continue the sentence:
- | Marry had a little lamb.



- | Marry had a little lamb; it followed her to school.



- | Mary had a little lamb and then a little broccoli.



Fallacies of ambiguity:

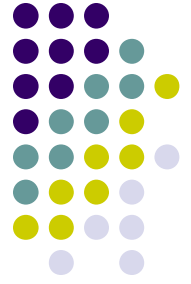
- I Fallacy of **equivocation**: an argument commits this fallacy when it uses the same expression in different senses in different parts of the argument, and this ruins the argument.



Six is an odd number of legs for a horse.
Odd numbers cannot be divided by two.

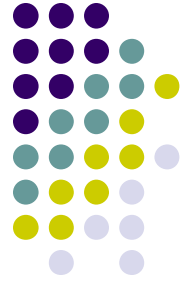
Six cannot be divided by two.

definitions

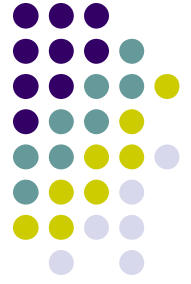


1. Lexical (dictionary) definitions – supply us with factual information about the standard meanings of words in a particular language.
2. Disambiguating definitions – tell us which lexical definition is intended in a particular context
3. Stipulative definitions – assign a new meaning to a new term or special meaning to a familiar term

Stipulative definitions cannot be false; they can be vague or ambiguous, useless or confusing



4. Precising definitions – used to resolve problems of vagueness; they are combinations of lexical definitions and stipulative definitions
 5. Systematic (theoretical) definitions – introduced to give a systematic order or structure to a subject matter or a theory
- Primitive (undefined) terms and derivative terms (defined by means of the primitive terms)



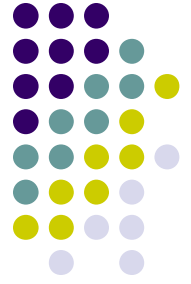
Family relationships

Parent, male, female – primitive

A is the brother of B = A and B have the same parents and A is male

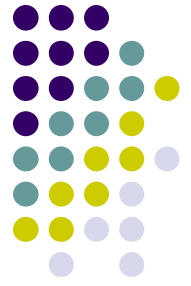
A is B's grandmother = A is a parent of a parent of B and A is female

⇒ Contextual definitions



Fallacies of relevance

- I Arguments *ad hominem* – arguments directed against a person who is arguing rather than against that person’s claim or argument.



A: The cold war is over, and bad relations between Cuba and the United States hurt both countries, so it is time for the US to develop normal relations with Cuba.

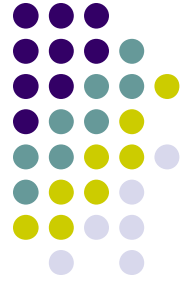
B: Yeah, so you can make a bundle importing cigars from those Commies.



- | *Ad hominem* **fallacy** – irrelevant statements about the arguer are improperly used to attack the argument itself (its validity or soundness).



- | *Richard Nixon's statements on foreign affairs politics in relation to China are untrustworthy because he was forced to resign during the Watergate scandal.*
- | From the fact that Nixon's honesty and integrity were badly damaged as a result of the Watergate affair, it doesn't follow that his foreign policy statements on China are false.



Appeals to authority

- | Appeals to authority can be abused \Rightarrow the fallacy of appealing to authority
- | If the person cited is not an authority in the area under discussion, then we are dealing with a fallacy of relevance.

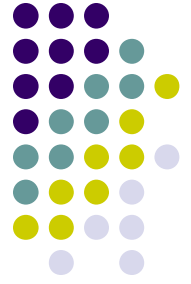


- | Whether the authority has been cited correctly
- | Whether the authority can be trusted to tell the truth
- | Whether a particular authority has any good reason to lie or misrepresent the facts
- | Why the appeal to authority is being made



- | **Appeal to ignorance**
- | My wife must be having an affair, because I can't prove that she hasn't.
- | My wife must not be having an affair, because I can't prove that she has.
- | My wife does not keep a dog in our garage, because I have never seen one there.

The ignoratio elenchi fallacy

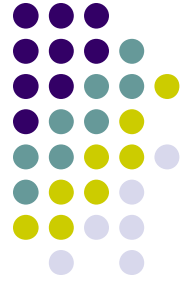


- | This fallacy is committed when an argument fails to prove the conclusion it is supposed to prove, and instead is directed toward proving some irrelevant conclusion. What is being brought to bear on the conclusion is simply irrelevant. Suppose a prosecuting attorney says the following:
 - | *Murder is the worst and most horrific of all crimes. Human life is sacred and not to be taken by man in any circumstances. Therefore, the defendant is guilty of murder.*
 - | The prosecuting attorney fails to prove what he was supposed to prove, namely that this particular defendant is guilty of this murder. What he actually says is irrelevant.



The ad populum fallacy

- | **Appeal to popular opinion/ appeal to tradition**
- | This fallacy is committed when the arguer appeals to mass enthusiasms, widespread belief, common opinion or popular sentiments in order to win assent for the conclusion of an argument not supported by good evidence. Instead of advancing objective premises that any reasonable person should accept, the arguer uses weak or irrelevant premises that have strong rhetorical appeal to the sentiments of group solidarity or common opinion of his audience. The arguer attempts to forge an emotional or attitudinal common bond between him and his audience: 'I am really one of you!'
- | The fallacy is to infer that p is true from the fact everybody, or at least very many, believe or accept that p is true, or infer that p is false from the fact that nobody, or at least very few, believes or accepts that p is true. Given that the majority is occasionally wrong, these inferences are *invalid*.
- | But they can serve to shift the *burden of proof*. If I claim that the earth is flat I need to do much more argumentative work than if I claim that it is round.



The ad baculum fallacy

- | Reasoning commits this fallacy when it resorts to *force* or the threat of force to make someone accept a conclusion of an argument. But not all appeals to force are fallacious. In particular, we need to carefully distinguish between an unreasonable *threat* and a legitimate *warning*.
- | (1) Don't walk on the platform. The surface is very slippery. And you may be fined up to \$1000.
- | (2) If you don't believe that David Becham is the current PM, then someone might expose your family to physical harm. So, you should believe just that.



The ad misericordiam fallacy

- | Reasoning displays this fallacy when it appeals to pity. The fallacy consists in the distraction from relevant evidence that should be brought forward to support the conclusion.
- | *I know that this essay is six weeks overdue and the final exam is over but I have many personal problems. I have a part-time job that I need to scrape together enough money to stay in school, and I have been having emotional problems. The person I have been living with has just left me, and my dog has just died. Also, my grandmother is very sick. Even so, I would have handed this essay in earlier, but my computer was broken. Also, I only need this one course to graduate, but if I fail it I can't stay in this country any longer to complete my degree because I have already booked my flight home.*



Fallacies of vacuity

I Circular reasoning

If PO wins the election, Donald Tusk will be a Prime Minister.

If PO wins the election, Donald Tusk will be a Prime Minister.



- | Circular reasoning – iff one of the premises that is used directly or indirectly to support a conclusion is equivalent to the conclusion itself.
- | *I know this act is wrong because my conscience tells me so. My conscience tells me so because it is wrong.*



I **Begging the question**

An argument begs the question in a context iff any objection in the context to its conclusion is also an objection to one of its premises, and that premise is not supported by any independent evidence.



It's always wrong to murder human beings.
Capital punishment involves murdering human
beings.

Capital punishment is wrong.

Sufficient and necessary conditions



- | *A is a sufficient condition for B just in cases in which, if A is true, then B is true as well.*
- | *B is a necessary condition for A just in case A is true only if B is true.*
- | *If Joan is a mother, than Joan is female.*
- | *Joan is a mother only if she is female.*
- | *A is a sufficient condition for B iff B is a necessary condition for A.*

The fallacy of confusing necessary and sufficient conditions.



- (1) You can't climb Ben Nevis if there is a snowstorm, but there is no such storm, so you can climb Ben Nevis.
- | (2) If you run 10K, then you will be thirsty, but you never run, so you will not be thirsty.
 - | In (1) it is a necessary condition on being able to climb Ben Nevis that there is no snowstorm. But this doesn't mean that this condition is also sufficient. You must also be fit and have the appropriate kit. In (2) it is a sufficient condition for being thirsty that you have run 10K. But this doesn't mean that this condition is also necessary. You will be thirsty if you cycle 100K.