Lecture 1 - Sept 6th

Philosophy asks two major questions:

1. *How do i know something is true?*
2. *What is valuable?*

To ask those questions and do it well is to engage in critical thinking

Searching for little moments when you ask yourself " why do i think this?"

Rest of course: what would be a good reason to believe something or give it value?

Lecture 2 - Sept 10th

Critical thinking: application of reason to get to truth.

- Getting to truth is tough but we can grapple with ideas that are false. By looking at what arguments fail.

Determining whether an argument is true:

- **Claim** - convey info, express beliefs, propositions
    - Claims something as factual
        - These facts can be true or false
    - Distinguishable from subjective opinions - which lacks the same true or false quality.
    - You have an argument when someone makes the claim and **Issue**
- **Issue**
    - Is it true?
- **Evidence**
    - What counts as evidence?
        - Can results/ outcomes be replicated
        - Take chair for example - you know the concept of a chair so you can infer something is a chair if it can function the way a chair is supposed to function
        - The idea that something is real knowledge and you don't get it from empirical knowledge - this is what you use to deduct reasoning
        - Think of circle - the idea is conceptualizable however, we have never seen a perfect circle.

David hume - Empiricist - believed that senses were all we had, and senses can not be trusted.

Most ideas revolve around the assumption that humans have free will. Our whole world is irrationally set up around this assumption.

Arguments -

- Premises - other basic statements that are supposedly evidence supporting the claim being made.
    - Must get to premise that everyone in the argument believes. Otherwise there is no point arguing at all.
    - Premises have to support conclusion
    - Must be relevant
    - Doing this is called **inference**

Explanation is different from argument

Explanation: “sky appears blue because of the way light reflects on the particles in the air.”

- Not an argument because the central claim is not an issue (i.e. is it true)
- Best way to tell if something is an explanation is if the final claim is something we all believe to be true.
- Arguing that something is the case is different than arguing that something could be the case.
- But remember that what is persuasive is often not rational (think about advertising)

Lecture 3 - Sept 13th

Psychological biases: **know all of the biases from the text**

1. Confirmation bias - less critical and careful about arguments and ideas when they accord with the beliefs we already have. We are less careful when we <u>think</u> we agree with something.
    a. When you approach something with preconceptions you see the world with those preconceptions
    b. What we expect to see we start to see
    c. Most difficult when new ideas threaten your identity
2. Bandwagon effect - when you feel compelled to belief ideas of masses or those around you. Used as a manipulative tool to incite a certain feeling
3. Negativity bias - tend to prioritize negative information over positive information.
    a. May stem from evolutionary traits when survival depended upon it. However it has become a leftover that is detrimental
4. Loss aversion - more worried about losing something then gaining the equivalent or more. If we think we are losing something we are far more inclined to take risks
5. In-group bias - less critical about claims from groups we feel an association with. The stronger the association, the stronger the bias often is.
    a. Sometimes mere existence of other groups cultivates cohesion of group and then opposition towards the other group.
    b. Karl Schmitt - “#1 job of politician when searching for support is to define the enemy then market yourself as the solution to the dangers exuded by siad enemy”.

6. Obedience to authority - less critical to those who we perceive as having more authority.
    a. Works in terms of perception to authority as well i.e. if someone is dressed as an officer they will be perceived to have more authority.
7. Overconfidence effect - over estimation of our abilities. “Better than average” illusion.

These biases become more powerful when they work in conjunction. This is often employed by politicians to gain support.

Lecture 4 - Sept 17th

Recall about arguments - if X then Y - be able to recognize arguments from non arguments

Explanation - central claim is not an issue, it’s believed to be true.

All arguments have an implicit “therefore” - classic sign of argument

Conclusion indicators - as such, thus, this proves that, consequently. These are the tell tale signs of arguments. Sometimes CI can be implicit

Premise indicator - Because, since, due to, on account of - indicates the evidence of the conclusion

Distinction between two types of reasoning

1. Deductive arguments
    a. Give us necessary conclusions
    b. Necessitate the conclusion
    c. If the premises are true, then the conclusion must be true
    d. Correct = valid
        i. Valid deductive argument can be made with false premise
    e. But if the premise is true then the argument is **sound**
    f. “Andy lives in northern Ontario, therefore andy lives in canada”
        i. Unstated premise - ontario is in canada
        ii. Stated premise - Andy lives in NO (becauses is implicit)
        iii. This is a valid argument but it is not sound because it can’t be proven Andy lives in Northern Ontario
    g. In an invalid logical argument, even if the premise is true the conclusion must be false

“You need to act like you know all the answers if you’re going to get elected. I guess Tim’s not going to get elected”

Conclusion - Tim’s not going to get elected
Premise - you need to act like you know all the answers
Unstated premise - Tim does not act like he knows all the answers

2. Inductive argument
    a. Stronger or weaker - means they are never certain, always a question of probability
    b. Quality of never quite being done.
    c. “Andy lives in NO, therefore Andy uses mosquito repellent”
        i. Premise - andy lives in NO
        ii. Unstated premise - lots of mosquitos in NO
        iii. Argument can get stronger but nothing will make it deductive or definitive

Lecture 5 - Sept 20th

Inference to the best explanation - prove to me your explanation is the best

Classic inference to the best explanation - theory of evolution - can’t really be seen - explanation to empirical evidence

Four basic things to look for - inference to the best explanation
1. Must provide explanation
2. Must lead to accurate predictions
3. Can’t conflict with existing knowledge - the more you know about the world, the less you can be fooled
4. Involves fewest unnecessary assumptions - Occam’s razor

What kind of argument or reasoning do we use in law - beyond reasonable doubt - what is reasonable?
- Extremely difficult to define - vague

First rule of identifying an argument - figure out the claim (conclusion) - always number them in order.
- “The selling of human organs should be outlawed” - 1
- Premise 1 - “allowing human organs to be sold will inevitably…” - 2
- Premise 2 - “this is so because..” - 3
- Premise 3 - “law of supply and demand... “ - 4

4 is reason to believe 3 which is the reason to believe 2 which is the reason to conclude 1

Four central types of obscurity in arguments

1. Vagueness - if word or term in argument is a reference to things which are borderline cases.
    a. Class of things - but some things are marginal and may not be easy to classify - who can be considered poor, who can be considered rich?
2. Ambiguity
3. Excessively general
4. Undefined terms

Lecture 6 - Sept 24th

In terms of vagueness - context absolutely matters

Ambiguity - when a word or phrase presents unclarity due to its various interpretations

Grouping ambiguity - see fallacy below

Fallacy - mistaken beliefs, often built on unsound arguments - logical mistakes in reasoning, often they've been around so long that they have names.

1. Fallacy of division - when you assume what is true of the whole group must also be true of its individual parts.
    a. Just because your the best team in the league it doesn't mean each individual player is the best at their position.
2. Fallacy of composition - Just because each member of a group shares a characteristic doesn't mean it is true of the group as a whole
    a. True in politics when debating cause ending policy may not reflect what anyone in particular wanted

God and first cause argument - every event in the universe has a cause - but since we cannot go back up the chain reactions of causes first start must have been caused by God

- This is fallacious because it assumes that the whole universe must have the same feature of what happens in it.

Syntactic Ambiguity - when grammatical structure produces ambiguity.

You will need a birth certificate or a driver's license and other photo ID

People who protest often get arrested

Generality - too much makes us unclear of what to make of the claim.

Defining tem - crucial to how the remainder of the argument will go. (think definition of life in abortion argument)

Definition - what does a word mean? This is up for debate

- Communication depends on understanding what is meant by what you say - shared understanding of a word.
- For instance - you can't make up what your clothes mean - mean, what others perceive them to mean.
- Lexical definition - meaning of word as it is ordinarily used in practice. Most obvious yet Least useful and most difficult to use
    - Most dictionaries are not based on lexical definition but rather on famous writing.

Rural Kentucky roadhouse - man gets drunk, gets on a horse to go home, falls off, police come and charge him with drunk driving. -

- *purpose of law is to make highways safe therefore whether he was driving or not is beside the point.*
- *Driving here is simply whatever is moving you forward down the road*
- *Law changed after to precise the term - any mode of transportation is considered driving*
    - *In this case - lexical meaning didn't matter*

Lecture 8 - Oct 1st

Credibility - inductive process - cannot provide certainty or allow us to determine truth. Merely a way of deciding how skeptical one should be

- Does the source stand to profit from the claim ?
    - Could they gain status or power?
- Must adjust level of suspicion based on how much source stands to gain
- Content of claim must be assessed when determining credibility
    - To what extent does it conflict with my background/past knowledge.
        - The more you know about a subject the better you stand to determine credibility of claim about it
- Observation is notoriously subject to distortion - emotion and bias can alter perception.
    - Does everyone perceive the same amount?
        - The more you build up a storehouse of knowledge the better suited you are to critically examine the world
- Skeptical is the default

Sources - what might make a source more credible - do they have expertise? Are they impartial?

- Where does expertise come from?
    - At the minimum requires some experience
        - But experience can be specialized and may not equate to expertise
        - Some people learn more from experience than others - be open to being wrong and try to learn from it. In short, be perceptive.
        - To recognize you're wrong is to learn

- Look for some form of accreditation - degree, diploma, certificate - but must be discerning about that too.
- Is expertise validated by other experts in the field?
- Ideally credible person is an expert in the field, has accreditation from respectable university and is validated by other experts in the field.
- Best of all is if their view is respected by those who oppose them

Expertise can be bought

- All the credibility in the world can undermined if they stand to gain something (or are getting paid) by an entity that stands to gain from the idea.
- Think of review sites - lots of them are owned by the companies whose products are being reviewed. Website ownership is particularly hard to discern

Judgement of credibility is about how skeptical one will be however it cannot guarantee and truth or certainty

Media - some thoughts and problems

Controlled by fewer and fewer people - consolidation - news media in US is owned by 5 major companies

1. Comcast
2. Disney
3. Time Warner
4. Viacom
5. Newscorp - Rupert Murdoch - single most powerful media mogul - extremely right winged.
    a. Part of the point here is that these names are not so recognizable and that is what they want.

Late 90's 70% of radio was owned by one company - they mader sure it was unknown because it destroys the delusion of choice - called Clear Channel

- Dixie chicks diss george bush then they were banned from all sorts of radio across america stations seemingly unanimously however it was all the decision of Clear Channel
- Great appetite for right wing commentators was fabricated because right wing company owned radio
- Clear Channel has since rebranded as iHeartradio - they buy up venues and leave them locally branded
    - Point is: it can be hard to know who owns the media and what their interests must be

Lecture 9 - Oct. 4th

Bias in the media - many of our major news outlets have figured out that business-wise the number one strategy for making money is to cater to its viewership.

- Problematic because it creates an echo-chamber and consumers rarely bump up against opposing believes

Conservative - maintaining prevailing values - fundamentally at odds with free market economics

- Many political beliefs are logically independent of one another yet get grouped into left-right spectrum ideology.

Advertising - all about associating - go for emotional jugular

Lecture 10 - Oct 8th

Not all subjective - mostly the case, even if there aren't final answers some answers are better than others - hard to answer does not necessarily mean subjective.

Descriptive claims - never give values
Philosophical claims - provide value
Normative claim

Rhetorical Devices

Rhetoric - the art of effective or persuasive speaking or writing

Euphemism - making something bad seem better "collateral damage"

Dysphemism - making something bad seem worse

Rhetorical explanation or definition - load definition with emotional terms

Stereotype - cultural belief or idea about a social group's attributes, usually simplified or exaggerated.

Innuendo - uses the power of suggestion to disparage someone or something

- Someone suggests a claim without making it straightforwardly.
- Damning with faint praise - weak praise that actually acts deconstructively "are they skilled? A: they work very hard."
- Making a statement without saying it

Weaselers - watering down of an argument to protect it from criticism and to give the claim's author a way out in case the claim is challenged.

"Great western pays up to 12 percent more interest on checking accounts."

- Up to
- More

"Evolution is just a theory"

- Just - downplayer but also used to equate it to every other theory and in doing so giving it less power.

Lecture 11 - Oct 11th

For test - variety of types of questions - fair bit of multiple choice, true/false, short answer

- Will include rhetoric - name the rhetorical device being used.
- Out of 40, worth 20%
- Covers chapter 1-5 (anything in class or in text is fair game)
- Good strategy - go to end of chapter recaps and make sure you know all of them.

Downplayers - they can use correct terminology for an inductive argument but often serve to "downplay" its effectiveness - context lets you know

- Merely
- So called
- "....."
- Only

Horse laugh / ridicule / sarcasm

- Big HA! After being presented with an argument - diminutive to the point of ridicule. Harder to do in text. Sarcasm is not actually an argument

Loaded Question - question that to even answer it you must accept unwanted negative assumptions.

- Question is not as important as the negative assertion the question implied
- What is being assumed when the question is phrased that way?

Hyperbole - exaggeration for effect - often used to ridicule

- Can be strangely effective even when you are aware it is being used
    - When movie is billed "best movie of the year" maybe not true but reader still will assume its good

Rhetorical analogies

- In analogies two things are compared and they must have something in common (reason to compare)
- Now what makes an analogy stronger or weaker or just rhetorical?
    - More similar characteristics
    - Analogs must have relevance to the existence of the feature -
        - A: 1,2,3,4, ….. 10 - if 1, 2, 3, 4 have no relation to 10 then analogy is weekend
        - Could also be a dis analogy
- How many similarities?
- How related are they to the outcome?
- Are there dissimilarities?

- Misleading comparisons - how are things being described? Is important information missing? Is the same standard of measure being used.
    - Classic example - political comparisons between countries - stat is likely to be measured differently
    - Is the comparison expressed as an average?
        - Just cause something is expressed as an average doesn't mean it will ever be seen - distribution is often important
        - Median is often better - it is the midpoint

Proof surrogates - when someone says "studies show" "experts agree"

- Something that stands-ins as proof.
- Image is not an argument

Ex. 5-21.2 - analogy has to be there in order for sarcasm to work

Lecture 12 - Oct 25th

Fallacies will be on the next test - three times as many and more technical in nature.

Fallacies - extremely prevalent in everyday life. They involve careful reading.

- Poor arguments that pretend to be good ones
- Mistakes in reasoning - therefore not rhetorical devices
- Claims evidence for a conclusion that is not there
- Often made using rhetorical devices to hide logical errors

Red herring - fail because the supposed evidence is irrelevant to the conclusion - often not pure because they are too obvious, seem goofy. Most red herrings feel like they could support the conclusion but in fact the premises don't connect to conclusion.

Ad Hominem - committed when instead of criticizing argument you criticize person making it. Quality of person is irrelevant to quality of claim.

- Most often ad hominems pick on negative traits.
- Inconsistency ad hominem - idea is discredited because person previously held different or conflicting view.
    - What matters is evidence for new position not how long they've held it
- The you too (tu quoque) fallacy - you don't act consistently with your claims or beliefs
    - Whether someone holds up to their claims is independent of the evidence supporting those claims.
    - "You don't have the right to make this claim"
- Poisoning the well or circumstantial ad hominem - discredit idea based on where it comes from. Circumstances one is in discredits their argument.
- Circumstantial ad hominem

Straw man fallacy - deliberately simplifies or misrepresents argument in order to make it easy to criticize. Tough to critically assess an argument you are trying to criticize.

- Often exaggerated to make look obviously flawed.

False dilemma - kind of a version of a straw man "ignoring other alternatives" - suggests there are only two options and one option is much less palettable

Perfectionist fallacy - precise version of false dilemma - unless you can solve issue perfectly with claim, claim is false

The line drawing fallacy - reject claim because it cannot define a precise boundary point or moment which it applies

Misplacing the burden of proof - often people have trouble with this. Occurs when person making the claim insists that you disprove the claim.

- Initial plausibility - less plausible the claim the greater the burden of proof
- Positive assertion - claimant has greater burden of truth
    - Sometimes this is extended to those who argue something should be changed. Can be tricky when it comes to progressive politics.
    - In court - innocent until proven guilty - if they can't prove your guilt, you don't have to prove your innocence.
        - State the police have more resources than average citizen
        - Harder to prove a negative
- Are they suggesting changes should be made or not

Appeal to ignorance - something is true simply because it has not been proven false.

The most serious fallacy ----- Begging the question, “circular reasoning” to simply assume the truth of what you are trying to prove within the premise. Has a snake eating its tail feel.

- Occurs because language is flexible
- Often contains middle premise
- Think constitution - why follow it? Well it’s the law and it says so but that’s already to accept the concept of following the constitution

The Bible says it’s the word of god, the word of god must be true so the Bible must be true.

Fallacies that appeal to emotion - built out of emotional devices we looked at earlier. Certain rhetorical devices can lead us to succumb to these fallacies

- Argument from outrage - convince solely by degree of anger
    - Good to remember that our emotions can be wrong.
- Scapegoating - if something is somebody’s fault we can stop it by stopping them.
    - Must ask for an explanation as to why its their fault.
    - “Fire the coach to fix the team”
- Scare tactics - make you afraid then offer protection in exchange for support. When people are afraid they don’t ask for evidence they ask for safety.

Herman Goering, top nazis - “voice or no voice, the people can always be brought to the bidding of the leader, all you do is tell them they are being attacked and denounce the pacifists for lack of patriotism”

- Argument from pity - feeling bad for someone therefore you should act. Plays on nicer emotions, but you must ask what the argument for acting is.
    - Guilt trips - make you feel guilty therefore you should do such and such.
- Peer pressure argument - “it’s common sense that…”
- Group think arguments - nationalism works this way - “as a canadian you should know that…”
    - Willing to spin imaginary narratives to get the feeling of being in a group.
    -
- Relevant conclusion - more encompassing - two wrongs do not make a right. - simply no connection
    - Always harder to prove when the initial wrong produces an advantage.

Nov. 1st - Chapter 7 - induction Fallacies

Hasty Generalization

When generalizing with too small a sample. However, humans rarely collect enough evidence to collect large enough sample not to generalize

- One factor affects this - how homogeneous is the thing we are generalizing? The more homogeneous the smaller the sample size need be.

Generalizing from exceptional cases - is the entity you are generalizing from unusual in any way?

- What are the starting conditions?

Bias sampling - population you are sampling is somehow bias. Important difference from generalizing from exceptional cases is that no matter the size of sample bias will still be present.

- Who is being sampled?
- Is it voluntary?

In life we must generalize a lot on what are at best not great samples.

“In my experience” etc…. Good qualifiers to continue the conversation

Fallacy of accident - inverse problem to generalizing - when you try to apply a general rule to which it does not apply “ return someone’s property” well what if its a gun?

- Law is a good example
- Committed when you apply the general rule to a specific case

Weak analogy

Appeal to authority - believe a claim simply because it is provided by an authority

- well does the authority really have knowledge or expertise?
- Are they biased ?
- Are they an interested party?

Nov 5th - Fallacies continued

Fallacy to common practice - argument from popularity - very similar but different - many people are doing it so you choose to believe it whether or not it is true.

Argument from tradition - you should do it because thats how its always been done.

Subjectivist fallacy - things are not made true because you decide or want them to be true

A good reason is always something that should convince another human being cause it convinces you - if it can't convince others then why is it convincing you?

Method of Agreement -

post hoc ergo proctor hoc - fallacy that just because we see something then see something after does not mean it caused it. Temporal succession does not imply causality. Everything is merely correlated

Must look for underlying cause - high correlation between black gloves and cart accidents - underlying cause - roads are more dangerous in winter.

One could mistake the order of causality - causal relation could go the other way.

- Positive attitude causes good luck
- How slippery is slope?
- "We've already invested so much in this project, what's the harm in investing more" - slippery slope and false dilemma

Certain kinds of claims cannot be disproven - not because they are true but because the requirement of falsifiability

- If something can never be proven false, how is it true "true rather than false"
- A truth claim must be falsifiable

Nov. 8th - Fallacies Cont….

Modus Ponens - simplest type of argument

1. If something then something else - if P then Q - "She has a license, she can drive"
2. P must be the case - (P is the case)
3. Therefore Q

This argument falls apart when reversed. "She can drive. Therefore she has a license."

- P is antecedent and q is consequent - and logical mistake is moving from consequent to antecedent - **affirming the consequent**

Nov. 12th - Formal Fallacies (logical)

1. If p then q
2. p
3. q

Antecedent - p
Consequent - q

Denying the Antecedent -

1. If P then D
2. No P
3. Not D

If Gandhi died in a plane crash then Gandhi is dead. BUT if Gandhi did not die in a plane then Gandhi may or may not be dead '

The undistributed middle - categorical logic - logic that categorizes things

1. *All sharks are fish.*
2. *All salmon are fish*
3. *All sharks are salmon*

Mistake here is the jump from sharks to salmon solely because they are both categorized as fish. Sharks and salmon are not related to the same class of fish.

Equivocation - word used at the beginning of claim interpreted differently when used at another point in the claim.

Some triangles are obtuse, whatever is obtuse is ignorant, therefore some triangles are ignorant

Amphiboly - Sometimes syntax ambiguity makes the claim fallacious

Fallacy of division - apply the characteristic of the whole to the parts
Fallacy of Composition - what's true of the individual, is not necessarily true of the whole

Confusing explanations with excuses - an explanation of why something occurred does not contain moral content. To get to value claim, a "should claim" you can't start at how things are. Normative claim must be made.

No normative claim in a description

The naturalistic Fallacy - "that's how it is so that's how it should be"

Cannot get an ought from an is

Contradictory claim and Contrary claim - two kinds - contrary and subcontrary - quality: in one case they can't both be true and in the other they can't both be false.

Some animals are cats, some animals are not cats - contrary cause both are true

Consistent and inconsistent claims - can be true at the same time or cannot be true at the same time.

Miscalculating probability

- **Gambler's fallacy -** to associate things that are causally unrelated
- **over looking to prior probability -** inverse of previous fallacy. Might be a causal relation that you haven't deduced.

On Quiz - chapters 6 to 9

- Rhetorical logic
- Fallacies
- Categorical logic

Categorical Logic

Categories - classes of things

- Also apply to predicate (sub categorizing)
- Four basic kinds of categorical logic

Categorical claims

1. (A) claims - all of some group of things are characterized as a second group of things
    a. All ____ are _____. (subject and predicate)
2. (E) Claims - all of some group of things are characterized as none of a second group
    a. No _____ are _____
3. (I) Caims
    a. Some ____ are _____
4. (0) Claims
    a. Some _____ are NOT ____

(A) And (E) are universal claims and (I) and (O) are particular

The subject term is always a group of something. That is, it is always a noun

Two types

1. Affirmative: something is something (A/I)
2. negative : something isn't something (E/O)

Only - when only is in front of category of things then its indicating the predicate of the categorical claim

Only sophomores are eligible candidates

- Only Xs are Ys translates to all Ys are Xs - must be converted to standard form

All eligible candidates are sophomores

If the world "the" appears before only - changes its logical meaning

- Every / none
- Always /never
- Everywhere / nowhere
- Anytime

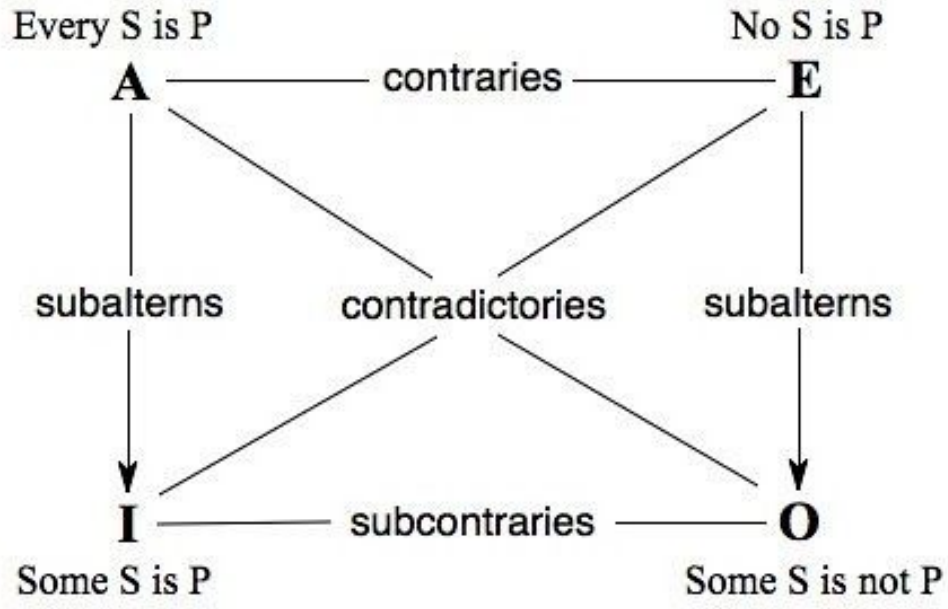
Metaphysical category of things - mass nouns - terms for which there is no one of them - creates categorical problems

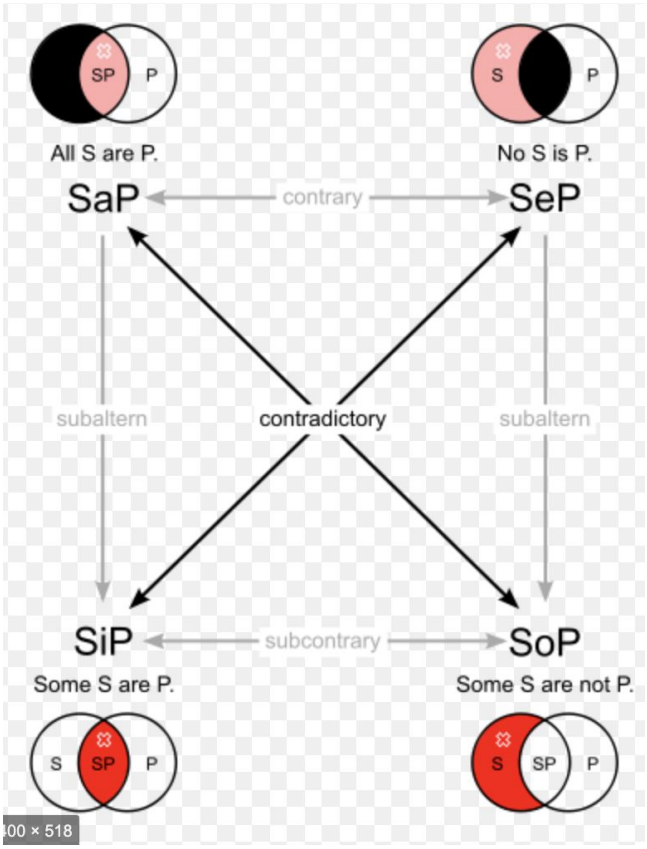
- No one - air
- No one - water

All examples of water are H20

Unique entities - no class of individuals - think famous art

Square of opposition





Turning claims that are logically equivalent into their standard form

1. Conversion - only applies to (E) and (I)
    a. *No As are Bs - no Bs are As*
2. Aversion
3. Contrapoversion

Nov 19th

Test 2 format:

- Lots of fallacies
- Some venn diagrams
- Out of 40 marks - worth 20%
- Try to categorize fallacies so you can reduce to smaller set to choose from
    - Ask yourself what the sentence is claiming/stating

Categorical operations - way of translating statements into logical form

- Recall - **conversion** only works for (E) and (I)
- *No married men are bachelors - no bachelors are married men*

- **Aversion** - must understand the meaning of a complimentary term - students become nonstudents
    - First change quality - all to none
    - Change predicate to its compliment i.e. put non in front
    - *All A are B - no A are non B*
    - *All cats are animals - no cats are non-animals*
- **Contraposition**
    - Two steps
    - Subject and predicate change places
    - Both terms are placed with their compliments
    - *All A are B - all non B are non A*
    - *Some A are B - some non B are non A*
    - Effectively its conversion with compliments added to both terms

First premise should always have the major term

S - minor - comes first in last claim
P - major - comes second in last claim
M - middle - appears twice

No P are M
All S are M
No S are P

No need to diagram the conclusion because the conclusion is necessitated by the premises

All P are M
No M are S
No S are P

All M are P
No S are M
No S are P

Some P are M
All M are S
Some S are P

If you have a particular and a universal premise - you must always diagram the universal premise first

Some M are P
All S are M
Some S are P

This one is not valid because it does not produce deductive certainty

Categorical syllogism -

CEOs have lots of responsibility therefore they should be paid a lot

All R are P
All C are R
All C are P

Nov 26th - Propositional logic (truth logic - deductive logic)

- Looking for structure beneath the content
- Four types of logical operators
    - Most deal of arguments can be covered by these arguments
- Most reduce complex sentences (multi-proposition) to simple statements.

It's not the case that logic is simple
L - logic is simple
~ - not the case

So = ~L

Kiss performs glam metal and Slayer performs speed metal.
And: & or (.)
So = K & S

V = or
so: S v W

→ = if/then
So N → P

Truth tables will not be on final

Truth tables:

P	~P	P	Q	P	Q	R
T	F	T	T	T	T	T
F	T	T	F	T	T	F
		F	T	T	F	T
		F	F	T	F	F
				F	T	T
				F	T	F
				F	F	T
				F	F	F

P	&	Q
T	T	T
T	F	F
F	F	T
F	F	F

P	v	Q
T	T	T
T	T	F
F	T	T
F	F	F

Could see something along the lines of (PvQ) &~ (PvQ)

P	→	Q
T	T	T
T	F	F
F	T	T
F	T	F

Prozac relieves depression (P)
And allegra combats allergies, (A)
Or tums reduces stomach acid (T)

(P&A) v T

But if comma moves to after depression

P & (A v T)

Nov 29th -

Logically equivalent when they have the same truth values everywhere

Consistent when they have the same value on one line. Inconsistent when no lines share the truth value

Think about conditionals, antecedent and consequent and “only” rules

If and only if $(p \rightarrow q) \ \& \ (q \rightarrow p)$

Modus Tollens:

If $p \rightarrow q$
$\sim q$

$\sim p$

Disjunctive argument (DA)

$P \vee Q$
$\sim p$
Q

Chain Argument (CA)

$P \rightarrow Q$
$Q \rightarrow R$
$R \rightarrow S$
$P \rightarrow S$

Simplification (SIMP)

$P \ \& \ Q$
P

Conjunction (CONJ)

P
Q
$P \ \& \ Q$

Addition (ADD)

P
P v Q

Constructive Dilemma (CD)

(P → Q) & (R → S)
P v R
Q v S

Destructive Dilemma (DA)

(P → Q) & (R → S)
~Q v ~S
~P v ~S

Must know first 14 rules

The second kind of rules are equivalencies

Double Negation D.N.
~~P = P

Dec 3rd -

Implication (IMP)
(P → Q) = (~P v Q)