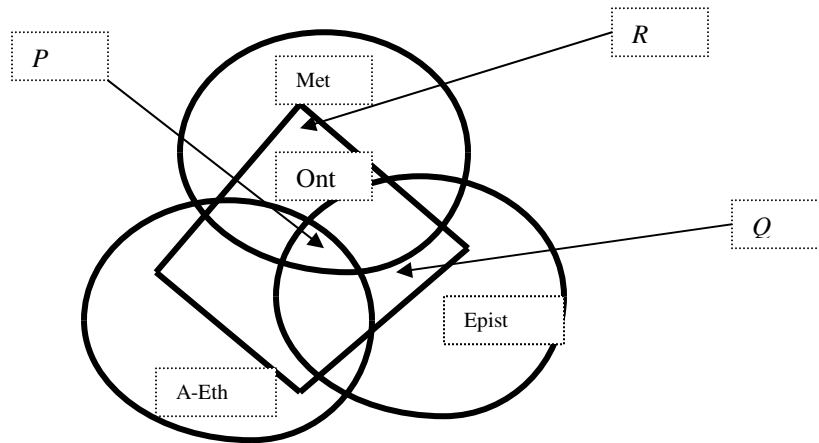


Notes for September 8 & September 15 Discussion Section

- **Basic sub-disciplines in Philosophy and how they hang together**

Recall our Venn-Diagram illustrating the interrelation of ontology (Ont), metaphysics (Met), aesthetics-ethics (A-Eth), epistemology (Epst)¹:



Consider P , Q , R as particular philosophical positions, or questions. We know that Q pertains to an ontological & epistemological position or question, and that R pertains to an ontological & metaphysical position or question, and that P pertains to an ontological, ethical-aesthetic, epistemological, *and* position or question. Can you think of examples? How about:

Q: How does the mental event signaling a perception exist in my mind? For example, my eyes, ears, and other senses receive their inputs that somehow produce some mental event like: “AARGH! There’s a tiger coming after me!” (We’d expect the unfortunate fellow not to sit around and philosophically analyze this event, -- at least not for very

¹ Informally, Epistemology is the study of the nature of knowledge, Metaphysics is the study of the nature of “ultimate” or “fundamental” constituent of reality (i.e., the study of the Real, or the “really real”), Aesthetics is the study of the nature of beauty, Ethics is the study of the nature of morality (I lumped them together because they involve more a notion of *value* than *fact* as their primary objects of study.) Ontology is the study of how “things” exist. (The quotations are meant to show that this notion of “thing,” is very general; i.e., a “thing” or “object” is whatever we can sensibly talk about.)

long.) Since we're dealing with mental events, i.e. percepts mediated by natural kind concepts like "tiger," this is primarily an *epistemological* issue. But the original question dealt with its nature of existence. Therefore we have such an example.

Answers to Q would inevitably overlap into Metaphysics as well. For example, if I believe the mental event: "AARGH! Tiger running towards me!" is just a collection of neurons firing in my brain, I'm giving a *materialist* account of the event's existence "in my mind." On the other hand, if I believe there's some kind of "software" churning away inside my mind, which takes all the sensory data as "inputs" and spits them out as the "output: " "Look out! Tiger coming towards you!" I'm advocating some kind of (weak) *dualism*, as I'm basically saying that the "hardware" of the brain is *not* the same as the "software" of the mind. Mind/brain can't be reduced to one another.

Exercise 1: Try to come up with questions from (and answers to) positions *P, R*.

(Hint: you might think that *P* would be hard to cook up, but consider that what we think of as most important about life: i.e., our concepts of love, work, intense experiences of beauty, etc. inevitably involve an overlap of many philosophical areas. Conversely, the less "central" notions not so near and dear are usually more abstract and therefore involve fewer overlaps. For a motivator, suppose I am awestruck but some spectacular sunset: it's not hard to come up with question(s) surrounding the nature of just what makes this event *so meaningful and important* in my life at that moment...is it something "beyond" what my senses report? etc.)

- **Syllogistic Logic**

Recall the standard form categorical propositions²:

Form	Informal representation	More formal representation ³
A – universal affirmative form	"All P are Q"	$\forall x (Px \rightarrow Qx)$
E – Universal negative form	"No P are Q"	$\sim \forall x (Px \rightarrow Qx)$
I – particular affirmative form	"Some P are Q"	$\exists x (Px \& Qx)$
O – Particular negative form	"Some P are not-Q"	$\exists x (Px \& \sim Qx)$

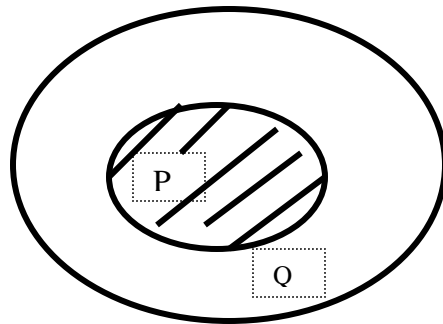
² Note that here we're studying logic *the way Aristotle and Stoics conceived and implemented it* – a rare opportunity to dust off this 2,000 year tool – to discover that is still works quite well in simple domains of discourse!

³ If you've never encountered this notation before, don't worry about it. I'm merely showing in the last column how logicians *today* would represent such propositions. Since I talked a little bit about this in Sect 0209, I'm including it here. But the important point is getting the *concept* right, the notation is window-dressing.

Now recall the really puzzling notion was definition of *distribution*. How do we *understand* that only P (the subject term) is distributed (i.e. “used to refer to all things in which it can refer”) in A, and that both P and Q (the subject and predicate terms) are distributed in E, and neither P nor Q are distributed in I, and only Q is distributed in O.

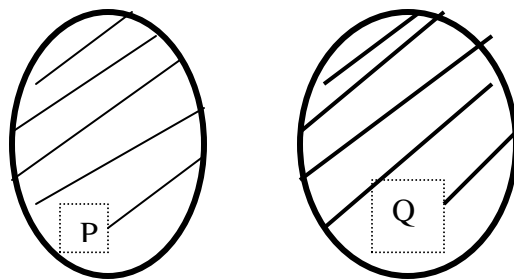
To understand this, we turn to the following (Venn) diagrams, to illustrate how P and Q relate in A,E,I,O respectively:

1. For A, its Venn Diagram is:



Consider P and Q to be regions denoting classes of concepts. For example, the A-form: “All humans are mortal” involves *all* instances of humans sharing the property of *mortality*. We can’t think of a single exception (unless we believe in immortals.) Hence all of P is shaded. The reason why we *don’t* shade all of Q is we can certainly think of instances of mortality which don’t involve human beings. So the subject is distributed (entirely shaded) but the predicate isn’t.

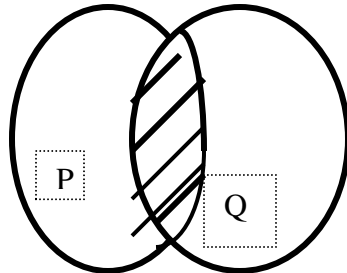
2. For E, its Venn Diagram is:



For example, the E-form: “No humans are bats” is true for *all* instances of humans. We can’t think of a single exception, unless we believe in Batman. Conversely, the same

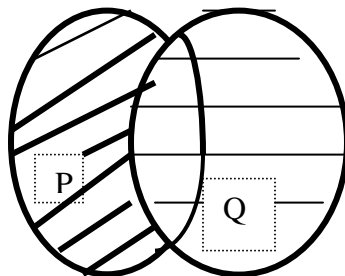
holds true for bats (none share the property of being human, -- Batman notwithstanding.) Hence the entire regions P and Q are shaded, so both P and Q are distributed.

3 For I, its Venn Diagram is:



For example, the I-form: “Some humans are happy” is obviously not true for *all* instances of humans (P) *nor* for all instances of happiness (Q). (We can easily consider, in the latter case, instances of happy critters which aren’t human... a cat purring, a dog wagging its tail, etc.) So neither P nor Q are distributed.

4. For O, its Venn diagram is:



For example, consider the O-form, “Some humans are not happy.” We shade (in diagonal lines) the region depicted above. It turns, out, however, that Q is *distributed* in this case, for the same reason that P and Q were in E-example. If we’re restricted to the case where some humans are unhappy, we can’t think of a *single* instance of happiness applying to humans *in this case*. (To make it more concrete: “My entire class is unhappy.” (Hopefully not!) Then, by definition, we can’t think of a single instance of happiness that would include anyone in the class. This is depicted above in the horizontally shaded region.

- **Syllogistic Mood and Figure**

These ideas are more straightforward, albeit subtle. Don’t get too tangled up in all the definitions and sub-definitions running around here. Basically, just think of the second premise as including the subject (S) of the conclusion, and the first premise as including the conclusion (P) of the conclusion. How many possible total

combinations are there? Well, to answer that, keep in mind that a syllogism consists of three standard categorical propositions. Each one of them can be of the form A,E,I,O. In addition, there are four figures of presenting a syllogism. So we get:

$$4 \times 4 \times 4 \times 4 = 4^4 = 256 \text{ cases!}$$

Are they all valid? Certainly not! Consider the Rules A – Rule E. Any of you mathematically inclined could analyze these rules and subtract from the total of 256 cases to see what you end up with. I leave it as a ‘challenge’ exercise, because it involves a lot of careful analysis (keep in mind that violations of some rule can overlap with cases of violation of some other rule, so to do this properly you have to ‘add back in’ cases in which 2 or more rules overlap.)

Anyway, let’s get to the **Logic Exercises**. We’re now in a position to do them.

(1) “No cowboys are sailors, because all cowboys are saddle owners, and no sailors are saddle owners.”

The first thing we have to do is tease out the syllogistic form. Start by asking yourself: which sentence is the conclusion? Answer: the first. Why? Because the next two give *reasons* supporting the first claim.

So we start by rewriting the conclusion in form: **No S are P**
whereby, **S** = “cowboys,” **P** = “sailors.”

This is a categorical proposition in E-form.

So now we have to work backwards from the conclusion to figure out which of the two sentences are the first and second premises. Note that the second sentence: “all cowboys are saddle owners” involves the subject of the conclusion (“cowboys”) so it *must* be the second premise. (Conversely, the last sentence involves the predicate “saddle owners” in the conclusion, so it *must* be the first premise.) Therefore, the above syllogism has form:

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

Where **M** = “saddle owners.” So this is a syllogism of the E-A-E mood, in 2nd Syllogistic Figure.

Is it valid? To find out we simply run it though the batter of Rules A-E, to find out which of them may be violated. So here we go:

Rule A (paraphrasing) A valid syllogism can’t have two negative premises.

Here, we're okay. There's only one negative premise (the first, and E-form, which is universal negative form.)

Rule B (paraphrasing) A valid syllogism can't have a negative premise *and* not a negative conclusion, *or* a negative conclusion with no negative premise.

Again, we're safe. We've got one negative premise and one negative conclusion (both in E-form)

Rule C (paraphrasing) A valid syllogism must have *at least one* occurrence of M which is distributed.

Again, we're fine! Why? Because Premise 1 is an E-form, which we saw that means both its subject (P) and its predicate (M) are distributed.

Rule D (paraphrasing) A valid syllogism which has a distributed term in its conclusion must have the same term distributed in one of its premises.

Well, we're really cool, now. Why? First look the conclusion. It's an E-form, so both its subject (S) and its predicate (P) are distributed. But we already saw from Rule C that (P) is distributed in Premise 1. So that takes care of (P). What about (S)? Well, it's distributed in the second premise, since it's the subject of an A-form. Almost there?? One more to go...

Rule E (paraphrasing) A valid syllogism which has a two universal premises *must* have a universal conclusion.

Home base!! Why? Because the premises 1,2 are E and A, respectively. Therefore they're both universal (since E is universal negative form, and A is universal affirmative form.) But the conclusion is also E, therefore, universal. So the argument is valid!

(3) "All SeaRay Sundancers are sport cruisers, therefore no sport cruisers are sailboats, because no SeaRay Sundancers are sailboats."

Which sentence is the conclusion? Answer: the second. Why? First of all, it's introduced with "therefore," which signals this to us right away

So we start by rewriting the conclusion in form: **No S are P**
whereby, **S** = "Sport cruisers," **P** = "sailboats."

This is a categorical proposition in E-form.

So now we have to work backwards from the conclusion to figure out which of the two sentences are the first and second premises. Note that the first phrase: "All

SeaRay Sundancers are sport cruisers” involves the subject of the conclusion (“sport cruisers”) so it *must* be the second premise. (Conversely, the last phrase involves the predicate “sailboats” in the conclusion, so it *must* be the first premise.) Therefore, the above syllogism has form:

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

Where **M** = “SeaRay Sundancers.” So this is a syllogism of the E-A-E mood, in 3rd Syllogistic Figure.

Is it valid? To find out we simply run it through the battery of Rules A-E, to find out which of them may be violated. So here we go:

Rule A (paraphrasing) A valid syllogism can’t have two negative premises.

Here, we’re okay. There’s only one negative premise (the first, and E-form, which is universal negative form.)

Rule B (paraphrasing) A valid syllogism can’t have a negative premise *and* not a negative conclusion, *or* a negative conclusion with no negative premise.

Again, we’re safe. We’ve got one negative premise and one negative conclusion (both in E-form)

Rule C (paraphrasing) A valid syllogism must have *at least one* occurrence of **M which is distributed.**

Again, we’re fine. Because Premise 1 is an E-form, which we saw that means both its subject (P) and its predicate (M) are distributed. (Moreover, M is also distributed in the A-form in the second premise.)

Rule D (paraphrasing) A valid syllogism which has a distributed term in its conclusion must have the same term distributed in one of its premises.

Red flag!. Why? First look the conclusion. It’s an E-form, so both its subject (S) and its predicate (P) are distributed. But in the second premise, (S) is the predicate, and it’s not distributed, since the second premise is an A-form, distributing its subject (M) only.

Rule E (paraphrasing) A valid syllogism which has a two universal premises *must* have a universal conclusion.

Here we’re okay Why? Because the premises 1,2 are E and A, respectively. Therefore they’re both universal (since E is universal negative form, and A is

universal affirmative form.) But the conclusion is also E, therefore, universal. But the argument is invalid, since rule D was violated.

Now I'll look at (5) in less detail. Try to fill in the details yourself, based on what was discussed above.

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

S: "Great athletes," **P:** "Great mathematicians," **M:** "college graduates"

A syllogism of the A-I-I from, 2nd Figure.

Rule A? Okay (no neg. premises, so $0 < 2$)

Rule B? Okay, in the trivial sense. We *have* no neg. premises, so it's okay that our conclusion is affirmative

Rule C? Red flag! M isn't distributed in premise 1 or premise 2 (Why?)

Rule D? Okay, in the trivial sense. We *have* no distributed terms in the conclusion

Rule E? Okay, in the trivial sense. (Why?)