SECRET HABITAT

- [http://www.infinitleoper.com/?v=YhwhFVF8r1w&p=n](http://www.infinitleoper.com/?v=YhwhFVF8r1w&p=n)
NECESSITY & CONTINGENCY
Consider these two sentences:

- It’s impossible for me to jump over the City Lit building.
- It’s impossible for a triangle to have four corners.

The first is a *physical impossibility*

- If the Earth’s gravity was a lot lower, for example, I could do it.
- This is a *counterfactual*: a fictional scenario that we recognise isn’t true but is still interesting to think about.

The second is a *logical impossibility*

- It’s false *by definition*: part of the definition of a triangle is that it has three corners, so it can’t have four corners.
- We can’t come up with a counterfactual in this case that might make it true. Or maybe you can, if you’re more ingenious than I am...
FREGÉ’S PROBLEM

Venus Cycle

Evening Star

Morning Star

NORTH

WEST

SOUTH

HORIZON

(Even Venus invisible below horizon)
Words often refer to objects: for example, your name refers to you.
- It looks like we ought to be able to exchange names for the same object without having much effect.
- “The morning star” and “the evening star” refer to the same object – the planet Venus.
- So we have three terms, all of which have the same reference:

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“Morning Star”  ----->  “Evening Star”  ----->  “Venus”
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In what sense are these sentences “saying the same thing”?  
- “I saw the Evening Star last night”  
- “I saw Venus last night”

Clearly it can’t be that one is true and the other is false!

This leads us to the idea that we can substitute any of the three terms for this object freely without changing anything essential.
Here are two sentences. All we’ve done is substituted “Venus” for “the Evening Star” in the second one:

- “The Evening Star is Venus”
- “Venus is Venus”

Are these two sentences “essentially the same”? 

BUT WAIT!
NECESSITY VS CONTINGENCY

“**The Evening Star** is Venus”
- This seems to give us real information: it might not have been that the object we call “the Evening Star” is Venus. It might have been some other object.
- So when we know this sentence is true we’ve genuinely learned something. There was a time when people didn’t know this.
- This fact is *contingent*. It’s only true because of other things that happen to be true.

“**Venus** is Venus”
- This seems to be redundant and useless. It gives us no information. We don’t learn anything new from it.
- This fact is *necessary*. It just can’t be that Venus is not Venus!
- There was never a time when people didn’t know that Venus is Venus.
ANOTHER EXAMPLE

- “Joan is my sister”
- “My sister is my sister”
Frege’s solution to this problem is to add the idea of “sense”.

Example 1:
- “I saw *Venus* this evening”
- “I saw *the Morning Star* this evening”

The second one is true in terms of reference, but there’s a problem with the sense.
- We don’t call Venus “the Morning Star” if we see it in the evening – that’s part of the sense of “the Morning Star”.
In modern philosophy the same distinction is often made by these terms.

The **extension** of a term is its reference.
- The extension of “chair” is all the chairs in the world.
- The extension of “that chair” (while pointing) is the specific chair being pointed at.

The **intension** of a term is its sense.
- The intension of “chair” includes things like “an artificial object for sitting on” and so on.
- “Animals with a kidney” and “Animals with a heart” have different senses – different intensions – but the same extensions.
- “Unicorn” has intension (a horse with a horn) but no extension (there aren’t any actual objects for the word to refer to).
Consider the following definitions:

- X is the set of all positive even numbers less than 7.
- X is the set that contains 2, 4, 6 and nothing else.

The first is an intensional definition, the second extensional.

- The extensional definition tells us precisely what things (if any) the term refers to.
- The intensional definition enables us to check whether it refers to a particular object without looking through a long list.

Common problems in maths, for example, arise from having one and wanting the other, or from having an intensional definition that isn’t very helpful and wanting to find a different one with the same extension.

- X is the set of all numbers whose squares are even.
- But which numbers are in the extension of X? The definition doesn’t tell us.
- We notice that a number’s square is even if and only if it is even.
- So we have a new intensional definition: “X is the set of even numbers”.

EXTENSIONAL VS INTENSIONAL DEFINITIONS
Possible worlds give a way to think about necessity and contingency.

We imagine there are many copies of our universe that differ from it in all possible ways.

- If something is true in every possible world, it’s necessary.
  - Example: “2 + 2 = 4”

- If something is false in every possible world, it’s impossible.
  - Example: “2 + 2 = 5”

- If something is true in some but not others, it’s contingent.
  - Example: “Venus rises twice each day, once in the evening and once in the morning”
Is there a possible world that’s just like this one except that unicorns exist?

**YES:** There’s nothing impossible about a horse with a horn on its head, so of course such a world is possible.

**NO:** A unicorn is *by definition* an imaginary beast. To say “This imaginary beast exists” is a contradiction in terms: it’s impossible.

On this account, there might be worlds in which some horses have horns, but it would be a mistake to call the “unicorns”.
If meaning is the same as reference, things that don’t refer to anything won’t have any meaning.
- “Santa Claus doesn’t exist”
- This is a meaningful statement, but “Santa Claus” refers to something nonexistent (as far as we know).

Is there a possible world in which Santa Claus exists?
One approach to this problem is to follow Russell and replace names with definite descriptions.

- So wherever we say “David Cameron” we should say “The current British Prime Minister”.
- This helps to remove ambiguity about who we’re talking about (there are lots of people called David Cameron, after all).

Consider these sentences:

- “The current British Prime Minister is an MP”
- “David Cameron is an MP”

These are both contingent statements, but they’re different from each other.

- In fact, we can differentiate between them using possible worlds.
- For example, there’s a possible world in which Cameron lost his seat and isn’t an MP, but whoever’s the Prime Minister is an MP.
Russell’s approach was partly designed to cope with sentences like this:
- “The present king of France is bald”
- Is this true or false?
- “The present king of France” is a definite descriptor; that is, we can give (he thinks) a pretty cut-and-dried set of criteria for deciding whether or not it applies to some object $X$.
- The truth of the sentence is clearly contingent
  - There are possible worlds in which there’s still a French king, and he’s bald; in those worlds the sentence is true.
  - There are also possible worlds in which there’s still a French king, but he has long, flowing hair; in those worlds the sentence is false.
- In the actual world, this definite descriptor doesn’t have a reference, so Russell wants to say the sentence is meaningless.
This offers a solution to the Santa Claus problem:

- “Santa Claus does not exist”

We must replace the name “Santa Claus” with a definite description: perhaps “A man who drives a flying sleigh and gives all good children presents on Christmas Eve”.

- Nothing in the actual world corresponds to this definite description.
- That’s what Russell would interpret “does not exist” to mean, so the sentence comes out as true.

Is it a necessary or contingent truth?

- That depends on whether you think someone could, in principle, exist who fitted our definite description.
- How likely or plausible it is is irrelevant – we only care about possibility.

In this case, whether it’s possible or not isn’t obvious, but this is something we could (if we cared enough) clear up by doing some research.
Is there a possible world that’s just like this one except I became the President of the United States?

- YES: When and where I was born, who my parents were etc are all contingent facts that might have been different.
- NO: Nothing entitles me to point to a U.S. president in a possible world and say “That person is me”.

This is an open problem – technically the problem of “transworld identity”.

- Nobody knows whether or how it can be solved.

Example: “I could have been late for class this morning”.

- This could be interpreted as saying “There’s at least one possible world in which I really was late for class”.
- But who is the “I” in that world? Not me, surely -- I’m in this world, and I wasn’t late!
In the classic problem, Theseus sets sail in a ship made of wood.

- As with all ships, over time its parts rot and have to be replaced.
- But Theseus is at sea for so long that all its parts have been replaced.
- Is it the same ship?

Trigger’s Broom offers a simpler case: [https://www.youtube.com/watch?v=BUl6PooveJE](https://www.youtube.com/watch?v=BUl6PooveJE)

An individual’s identity across possible worlds has the same problem.

- How many contingent facts about me can I change before it stops being me?
Saul Kripke responded to these kinds of problems by taking the opposite path from definite descriptions.

“Venus” is a **rigid designator**: a name that picks out the same object in different possible worlds.

- Consider a sentence like “Venus’s orbit could have been more elliptical”
- This must mean: “There’s a possible world in which Venus’s orbit is more elliptical than it is in the actual world”.
- But if we can’t say the thing called “Venus” in that world is the same object as the one called “Venus” in ours, the whole thing falls apart.

The details of how he gets to this are tricky and controversial, though. How do we keep our designators rigid?

- Is a rigid designator rigid in all possible worlds? It seems like we need another layer of “possible multiverses” to even ask that question!
- The point we should take away from this, for now, is that it’s complicated to talk about the same thing in different possible worlds.
They’re useful, but what all this shows us is that they can lead us into seriously difficult problems with our thinking.

After the break we’ll have a look at one set of philosophical problems that emerge from them.
FICTIONAL WORLDS

Exploring the Multiverse
The next part of this session asks a lot of silly questions.

You might feel they’re a bit trivial or childish, and in a sense they are.

But fictions can be serious as well.

- Counterfactuals – “what if?” questions – are an important part of reasoning in many areas of life.
- We could say something similar about activities like role playing, forecasting and feeling empathy for others.
  - “When I’m at work I’m going to behave as if I know what I’m doing”
  - “I think it may rain later so I’ll take an umbrella”
  - “I can imagine how awful that person must feel, so I’ll treat them gently”
Here are three questions:

- What if the government renationalized the railways?
- What if Harry Potter wasn’t really a wizard?
- What if triangles had four sides?

Creative writing exercise (outside class!): write a story based on each of these questions.

The questions we’ll think about next, though they seem a bit daft, can help make sense of questions like these and why they seem different.
Someone asked this question, and the answer was “we’ll get amazing pictures”. There were many other possible ways to launch the probe that wouldn’t have got us these images.

They answered this question using computer simulations: that is, simulated “possible worlds”.

An eruption of the giant volcano on Tvashtar on Io, one of Jupiter’s moons.
One way to think of “What If X?” questions is like this:

- Imagine a possible world that’s exactly like this one except that X is true.
- Another way to put this: pick all the possible worlds in which X is true. Out of these, pick the one that agrees most closely with this world.
- Now the answer to “What If X?” is all the things in that world that are different from our world.

There are some practical problems with this, though.

- We don’t have a way to uniquely identify the “right” possible world out of the huge (infinite?) number of them.
- In many cases we don’t know the full consequences of an action. The “butterfly effect” might be a real problem.
- Nevertheless, we create imaginary worlds all the time – for decision-making, for entertainment and perhaps for other reasons too.
This is a famous essay from 1933 by L. C. Knights

Things we know about Lady Macbeth:
- She has breastfed a child.
- She has no children.

There are various ways to make sense of these facts.
- She was speaking figuratively about the breastfeeding.
- She had a child that died in infancy.
- She breastfed someone else’s child.

Shakespeare’s play doesn’t help us decide which of these is the “right answer”.
- Must there be one right answer?

Incidentally, Knights’s essay is mocking this type of question.
A basic tenet of storytelling is that we ought to be consistent – that is, we shouldn’t contradict ourselves.

- It shouldn’t be that Lady Macbeth had no children and that she did have children.

- Worlds that contain contradictions are impossible worlds; we can’t believe them or even understand them. We feel anything might happen, and perhaps we cease to care. They become like dream-worlds.
What do you think about the truth of following statements?

- Sherlock Holmes lives at 221b Baker Street
- Sherlock Holmes does not exist
- “Sherlock Holmes lives at 221b Baker Street”, written by Arthur Conan Doyle
- “Sherlock Holmes lives at 221b Baker Street”, said by Dr. Watson
- “Sherlock Holmes does not exist”, said by Dr. Watson

How about these?

- Sherlock Holmes is left-handed
- Sherlock Holmes is one of the following: left-handed, right-handed or ambidextrous.
Let’s agree there’s nothing impossible about the Holmes character and the things he does.

Then we could say he could have existed.

- Some philosophers would interpret this as: “He does exist, in some possible world”.

Some questions:

- There are many possible worlds in which A. C. Doyle’s Holmes stories are factual. Thus, there are many Holmeses.
- Besides the facts in the books, these Holmeses might be very different, as might other facts about the worlds they live in.
- Then which one is actually Holmes?
  - Kripke: None of them (“Which one?” only has absurd answers)
  - David Lewis: All of them; they’re all counterparts, bound together by their agreement with the stories that “define” what “a Holmes” is.
Isn’t it possible that Holmes never became a detective?

- YES: There’s nothing in the stories (which are the only “facts” about Holmes) to say his becoming a detective was logically necessary.
  - BUT: Now there are possible Holmeses who don’t have all the properties A. C. Doyle’s stories say they should have. On that account, why not say I am Holmes, or anyone else?

- NO: For someone in a possible world to count as a Holmes, all the facts in the stories, including that he’s a detective, must be true of that person.
  - BUT: This breaks our ability to talk about necessity and contingency in possible worlds. And the whole reason we invented possible worlds was so we could talk about necessity and contingency!
Another question: did A. C. Doyle *create* Sherlock Holmes or merely *discover* him? (Assume we’re going with a “possible worlds” view of things for now)

- **DISCOVERED:** The possible people who matched the accounts in Doyle’s stories would have been possible whether Doyle had written or not. What Doyle did was discover their possibility and note it down.
- **CREATED:** All those different possible Holmeses are genuinely different. Doyle created a set of criteria that bind them together and make them examples of the class of all Holmeses rather than just different possible people who happen to have things in common.

This is an issue for other parts of the philosophy of art too, incidentally.

- For example, it was always possible (just very unlikely) that some natural event could have created the exact sound of Beethoven’s 5th Symphony.
- This is a logical possibility; in composing the piece, Beethoven *discovered* this possibility.
- There are surely possible worlds in which some other composer produced a piece of music identical to what we call Beethoven’s 5th Symphony.
- But this does a lot of violence to what we think of as artistic creation!
At the end of *A Christmas Carol*, Dickens describes the reformed Scrooge buying a huge “prize turkey” on Christmas morning and delivering it to the home of his long-suffering employee, Bob Cratchit.

According to a puzzle sent to literary critic John Sutherland by a class of schoolchildren, such a turkey would take at least 10 hours to prepare and cook; meaning “Christmas dinner” could hardly have been eaten until the small hours of the morning.

Sutherland enters into the spirit of this and offers an explanation: yes, the huge turkey really must have delayed dinner til very late at night, which is why Bob was late for work the following day.

But (as Sutherland knows very well) these kinds of things strike us as absurd. Do “literary worlds” have to be consistent and make sense? Must such puzzles always have solutions?
Why do we need to “fix” the turkey “problem” in *A Christmas Carol*?

- We think the story takes place in a world very like the Victorian version of our world.
- That world contains ghosts and time travel, but they’re remarkable and strange to people in that world too.
- If it also included large turkeys that could somehow be cooked very quickly, we think that should be remarkable too. We expect some kind of “sign” of this difference between the fiction’s world and our own.

In other words, we often seem to expect a fictional world to be the same as the actual one unless the author explicitly tells us it isn’t.

- Does this observation work for genre fiction? What about other media such as video games?
A “canon” is an approved, authoritative body of work.

If you buy a (reputable) Complete Works of Shakespeare:

- It will **definitely** contain *Romeo & Juliet* – this is part of the Shakespeare canon
- It will **definitely not** include *Doctor Faustus*, which Shakespeare didn’t write.
- It will **probably** include *Henry VIII*, though parts of that play are now known to have been written by John Fletcher.
- It will **probably not** include *Edward III*, although scholars now widely believe Shakespeare collaborated on this play with Thomas Kyd.

Who decides whether a text belongs in a canon or not?
Suppose we want to answer a question about Sherlock Holmes. We can’t find the answer in the (actual) world; we must turn to the “canon” of authoritative works to find the answer.

What is the canon?

• Most people agree that the 56 short stories and 4 novels published by A. C. Doyle in his lifetime that feature Sherlock Holmes belong in the canon.
• There’s more controversy about “apocryphal” writings by Doyle that were not published until after his death.
• There’s also the question of other fictions by Doyle that take place in the same period but don’t feature Sherlock as a character. Do they occupy “the same world” or not?
• What about fictions by other writers? Film, TV, stage, radio, video game and comic book adaptations? What about fan fiction?
If you wrote a Sherlock Holmes story, perhaps you’d feel it should be consistent with the existing Sherlock canon.

- Things the canon leaves open are contingent.
- Other non-canonical writers occupy other possible worlds.

But maybe you don’t agree at all.

- On fanfiction.net alone there are 3,843 Sherlock stories – far more than Doyle ever wrote.
- Fanfiction is fun – if you’re going to go the whole hog and do Superwholock, who cares about “correctness” and canonical consistency?

What’s more, “the canon” itself often isn’t clear-cut...
Harper Lee’s 1960 novel *To Kill a Mockingbird* is a well-loved classic of American literature.

- It features Atticus Finch, a white lawyer who defends a black man falsely accused of rape in a town in the Deep South.
- Because of his depiction in the book (and the subsequent film), Finch is widely regarded as a heroic character who fights against racism.
- The book was written by Lee in collaboration with her editor.

In 2015 Harper Lee published *Go Set a Watchman*, which was an early draft of the 1960 novel.

- This version is very different.
- In particular, Finch is depicted as a member of the KKK, a bigot and a racist.
- One Michigan bookshop is even offering refunds to disappointed readers.

Which is the “real” Atticus?

- The one that was published earlier?
- The one that was written earlier, and by the author alone?
- Do we have to somehow reconcile these two into “the same world”?
The Sherlock canon is fairly well-defined, but that’s not always the case.

**Game of Thrones**
- This started out as a series of novels by G. R. R. Martin.
- The novels are still being written.
- An HBO TV series started adapting the earlier novels, and has now caught up with Martin’s novels.
- In the process, the TV series has diverged quite radically from the novels, such that the two are inconsistent
  - For example, some characters are alive in the novels but have died in the TV series, and *vice versa*.
  - Given the slow pace of Martin’s novel-writing and the need for a new TV series each year, the TV *Game of Thrones* may end up becoming completely different from the one in the novels.
- Martin is involved in both media.

What is the canon here?
- Which is the “real” *Game of Thrones*? It’s not clear.
- If you wanted to tell a story in that world, which should you be consistent with?
- Is it two different worlds? Was it two from the beginning, or did they “split”?
Mostly we’ve discussed traditional literature (novels and short stories).

Other possibilities sometimes raise different questions:

- Interactive fiction.
- Role-playing games and collaborative storytelling-games.
- Video games, especially those involving simulations and procedural generation of content (“procgen”).
- Worldbuilding
- Generative literature (texts written by computers).
Here’s something controversial to end on...

Suppose the main activity of physics is making precise models of parts of reality.

- These models simplify the thing they’re trying to describe; they enable us to run mathematical “simulations” that produce predictions.
- If a model is “good”, its behaviour can be translated into predictions about the real world.
- But the model is not reality: it’s a sort of constructed, simplified universe.

So are physical theories similar to fictional worlds, and in what ways?

Can studying fictional worlds tell us something about how physics works?