

## Lecture Six: Fallacies

Lecturer: We've gone pink for the last day. I thought we'd have a change.

(Slide 2) Right, okay, so welcome everyone again. Last week, as you know, we looked at the nature of induction, the value of induction, the different types of induction, and how to evaluate the different types of induction. So can anyone tell me anything about the nature of induction? In particular can anyone tell me the principle?

Female: Well it's not based on when something's right or wrong, it's either a stronger or weaker argument. Sorry, not right or wrong, sorry, the argument is either strong or weak.

Lecturer: Okay, the argument isn't valid or invalid as it is with deduction, it's either strong or weak, that's right. We still want the premises to be true, so that's still important. But the argument is either strong or weak, it's a matter of degree, not an either or matter.

Male: You have to refer to the real world.

Lecturer: There's nothing unreal about the world of logic actually, but you have to refer to your background knowledge about this world, that's true.

I mean do you think possibilities are real? I mean do you think it's a possibility that I was wearing jeans today?

Class: Yes.

Lecturer: Is that a real possibility?

Female: Yes.

Lecturer: Okay, but it's not an actuality, is it?

Class: No.

Lecturer: Okay, so it's not only the 'actual' that's real. Sorry, Christopher.

Male: That's alright.

Lecturer: Okay, can anyone tell me the principle?

Male: Principle of the Uniformity of Nature (PUN).

Lecturer: The Principle of the Uniformity of Nature, which is?

Female: What's happened in the past would be happening in the future.

Lecturer: Yes, that nature is uniform, that the future will be like the past, that's right. So all inductive arguments rest on the idea that the future will be like the past, and that's why they're never conclusive, because we can't prove that the future will be like the past, can we?

It always rests on the circular argument, if we try and justify it, we say 'Well, in the past the future has always been like the past, therefore in the future the future will be like the past.' Well, that itself rests on the Principle of the Uniformity of Nature.

Female: Does it mean that that is the possibility that we think and that's why it happens as well, because we think it possible the future will be like the past is a possibility?

Lecturer: Is it possible that the future will be like the past, is that what you're asking?

Female: I'm asking, and we think that it is possible, so...

Lecturer: We do think that the future will be like the past, yes.

Female: It might not be sometimes.

Lecturer: Sometimes it isn't, I mean sometimes we get it wrong.

Female: So the actuality is as you said is not the reality.

Lecturer: Yes.

Female: But it's only a possibility would you say?

Lecturer: Well, it may be an actuality, the fact is we don't know. We think that the future is going to be like the past, and sometimes it is and sometimes it isn't. We actually believe that there are natural laws that make it the case that the future is like the past, but we're not in a position to know this. So even if it's true that the future will be like the past, we can't be certain that the future will be like the past. That's the difficulty.

Okay, and we looked at the value of induction. Do you remember we looked at Popper, who believes that if induction isn't rational then it shouldn't be used by science. Scientists shouldn't use it.

When, Hume, it was, who said that induction isn't rational, does he mean that it's irrational?

Class: No.

Lecturer: No, what does he mean?

Male: Non-rational.

Lecturer: That it's non-rational, exactly. So irrationality is a failure in the house of reason. You can't be irrational unless you're rational, and what Hume is saying about induction is that it's not rational at all and therefore it isn't irrational either. It's just non-rational. It's something that human beings can't help doing, but it also underpins so much of our thinking, and it seems to work, doesn't it?

We looked at different types of induction, can anyone name a couple or name one?

Female: Generalisation.

Lecturer: Inducted generalisations, that's one.

Male: Authority.

Lecturer: Arguments for authority, that's another.

Male: Analogy.

Female: Causal generalisation.

Lecturer: Causal generalisation and somebody said analogies down here. Anything else?

Female: Abduction.

Lecturer: An abduction, yes, which is argument to the best explanation, which goes from theories that have been simple, coherent with other theories etc. in the past have always worked, therefore they will in the future.

Okay, good, and then we looked at each of the different types of induction. We looked at the questions that we should ask of each one. Good, okay.

Well that's what we did last week. (Slide 3) It's our last week this week and what we're going to do, first we're going to look at the nature of fallacies. Then we're going to look at some particular fallacies and then I'm going to go over to you and let you ask questions about all the lectures that we've had, all the six lectures. So I hope you've come armed with some questions. Then finally I'll think about where you might go next if you want to continue with philosophy.

(Slide 4) So first let's consider what a fallacy is. The word 'fallacy' is used by logicians in the technical sense. So rather like the word 'valid' it also has an everyday sense. So do you remember we use 'valid' everyday to mean that's a valid opinion, that's a valid position, that's a valid point of view, etc. whereas logicians use it only of what?

Female: Conclusion.

Lecturer: Deductive, only of arguments in particular, but in particular deductive arguments, that's right. You can't say of a sentence

or an opinion or a point of your position or something that it's valid, it doesn't make any sense.

What is it for an argument to be valid? Can somebody who swallowed the definition tell me? What is it for an argument to be valid?

Male: The premises must entail the conclusion.

Lecturer: Good, the premises must entail the conclusion and what does that mean?

Female: There's no...

Lecturer: No, not that the premises must be true, you can have a valid argument with false premises and you can have a valid argument with false conclusion, and you can have a valid argument with false premises and a false conclusion. So it's certainly not the case that the premises must be true.

Female: I think it's not logically possible for the conclusion to be true, logically impossible.

Lecturer: No, you're getting there.

Female: The conclusion should be true if the premises are true.  
[inaudible].

Lecturer:

I think there was a 'not' in the wrong place there, but yes. There is no logically possible situation in which the premises are true and the conclusion false. So if the premises are true it's logically necessary for the conclusion to be true as well. So that doesn't mean either that premises are true or that the conclusion is true. It's rather *if* the premises are true, the conclusion must be true. So it's a relation between the premises and the conclusion. But that's the technical definition of the word 'valid.'

So in logic we don't use it as a general term of approval. It's a very specific definition of what an argument might be like.

(Slide 6) The word 'fallacy' is the same. So in everyday senses we say 'that belief is fallacious, that thought is a fallacy, that reasoning is fallacious.' Now some of those would match the technical use and others wouldn't.

(Slide 7) So a logician is going to use 'fallacy' and 'fallacious' only of arguments. So a fallacy to a logician is a faulty argument, an argument where the reasoning goes wrong, and when the reasoning in an argument is faulty then the reasoning is thought of as fallacious. So it's only of an argument which is the same with the word 'valid.'

(Slide 8) It's worth learning about fallacies, because if you want to reason well obviously you've got to learn how to avoid reasoning badly. Studying fallacies alerts us to the sort of error that people can make. There are lots of errors in reasoning, but there are some that are particularly common and some where an argument, a bad argument looks very like a good argument and so that's an error that people make quite often.

We tend to think of it as a fallacy when it's a common mistake. That's why there's a point in naming it.



(Slide 9) There are literally hundreds of fallacies, and the Internet Encyclopaedia of Philosophy - which I've got listed in the resource section, if you want to have a look - lists 208 fallacies and it probably leaves out loads. A fallacy is only worth naming if it's a common error.

(Slide 10) Many people have tried to classify fallacies. So the first person to do this was Aristotle, although Plato actually collected examples, he didn't categorise them. But the classifications of people often cross cut each other, and if you wonder around the web a bit, just looking at fallacies, you'll see that everyone classifies them in different ways. (Slide 11) But here's one classification which I love, and I've actually got it on a hand-out to give out to you as well, so you can have a look at that.

You can't read this, it's far too small, and actually I can't read it either, it is really too small, so I'm going to read it from here. But that's divided into formal fallacies and informal fallacies and then types of formal fallacy. So these are deductive fallacies, these are inductive, types of formal fallacy, types of informal fallacy, and then categories within those types.

I think it's ingenious and you've got the classification there. That's from something called *The Fallacy Files*, which I've also got on the resources section. There you are, that's the chap who's put that together.

(Slide 12) But I'm not going to bother with classifications. What I'm going to do is I'm just going to introduce you to some of the commonest fallacies. I'm sure that the ones that I talk about are possibly ones you'll have heard of because they are common ones.

(Slide 13) These are the ones I'm going to look at. I'll read them out. 'Affirming the Consequent, Denying the Antecedent,

The Masked Man Fallacy, The Gamblers Fallacy, The Fallacy of Undistributed Middle, Amphiboly, Equivocation, Straw Man, Slippery Slope and Begging The Question.’ You’ve probably heard of most of those, have you?

Female: Yes.

Lecturer: No, not all. Some are new to you. (Slide 14) Okay, so let’s look at ‘affirming the consequent.’ In this case you’ve got a conditional, ‘if it’s a raven then it’s black’ and you know all about black ravens, don’t you, from last week. So ‘if it’s a raven then it’s black’. ‘It is black, therefore it’s a raven’. Can you see why that’s a fallacy? Can you see that the premises of that can be true and the conclusion false?

Class: Yes.

Lecturer: If you’re not sure about that check out your Venn diagrams. All ravens are black, so the class of ravens is within the class of black things. It is black therefore it’s a raven, well no, it’s not, because it could be black but non-raven, couldn’t it. It could be my black boots.

So what’s going on there is you’re affirming the consequent, whereas if you affirmed the antecedent instead. Have I told you what antecedent and consequent are? No, okay.

Whenever you have a conditional it has two clauses. It has the ‘if’ clause’ and the ‘then’ clause. The ‘if’ clause is called the ‘antecedent’ and the ‘then’ clause is called the ‘consequent’. So the antecedent in this one is ‘it is a raven’, and the

consequent is 'it is black'. 'If' and 'then' are both the logical words.

If you had 'if it is a raven then it's black. It is a raven' what could you conclude?

Male: It's black.

Lecturer: That it's black. Okay, that would be entailed, wouldn't it, by the two premises then. So if you affirm the *antecedent* you get a deductive argument, deductively valid argument. If you affirm the *consequent*, you get a fallacy. You get a bad argument.

Is that straightforward to everyone? Anyone want to ask about that? No, okay.

(Slide 15) Here's the second fallacy we've got, which is 'denying the antecedent. 'If it's a raven it is black. It is not a raven', so that's the denial of the antecedent, 'Therefore it's not black.' Can you see why that is a fallacy?

Male: Yes.

Lecturer: Did somebody say 'no'? You can check out the Venn diagram again. So 'if it's a raven then it's black.' Okay, here's a class of ravens again within the class of black things. It's not a raven, so it's not in that class, therefore it's not black. Well some non-ravens are non-black, but some non-ravens are black, aren't they? Like my boots again.

Again that's a fallacy, a very common one. It's one that has been made in this very room in fact.

(Slide 16) The Masked Man fallacy, sorry I should have asked if there were any questions about 'Denying The Antecedent.' Any questions about that? No.

Female: What are these, these 'If' things, we don't do 'ifs' as...

Lecturer: What are the 'If' things?

Female: Yes.

Lecturer: They're conditionals. (Slide 15) That's a conditional. 'If it's a raven then it's black,' is a conditional. The 'if' clause, in this case 'it is a raven,' is the antecedent of the conditional and the 'it is black,' the 'then' clause is the consequent of the conditional.

Female: I can see that but the problem seems to lie with the 'if' clause being not a comprehensive description of the world around us.

Lecturer: The 'if' clause specifies that we're only talking about ravens here, doesn't it? I mean we're saying, *of ravens*, that they're black. If it is a raven, I mean that's true of my finger actually. It's true of my finger that IF it's a raven it's black. But of course actually my finger isn't a raven, so nobody thinks of it like that. So no, it's not a – but what it does is it identifies the domain that we're talking about.

Female: So that's what we're doing identifying a domain.

Lecturer: Well, 'if it is a raven then it's black', that's what a conditional does. In the 'if' clause it picks up what we're talking about then it says something about them.

Any other questions about that one? No.

(Slide 16) Let's have a look at the 'Masked Man' fallacy. This is a slightly harder one to understand. If the masked man is John's father, and John believes that the masked man committed a crime, you might think that therefore John believes that his father committed a crime. But actually that's not true is it? Because we can believe something of someone without believing that that someone satisfies that belief.

So the premises here can be true and the conclusion false, because if John doesn't know that the masked man is his father, then he may believe, *of* his father, that he committed the crime, but not necessarily *that* his father committed the crime. Do you see the difference?

Male: Yes.

Lecturer: It's the difference between, sorry, I'm going to introduce some more terminology here. Difference between a *transparent* understanding of a belief and an *opaque* understanding of a belief. So if the masked man was John's father and the John believes that the masked man is his father then it has to be the case, doesn't it, that he believes that his father committed the crime. But if he doesn't believe that his father is the masked

man, then he can believe that (premise two) without believing that (the conclusion), can't he?

So that's a peculiarity of talk about intension, where intension has an 'S' because this is a belief context. You can believe something of someone without believing that it is true of that thing.

Any questions about this one?

Male: Would it be safe to say John believes that a masked man committed the crime?

Lecturer: If you believe the masked man committed a crime, you do believe a masked man committed a crime, don't you? But I don't really...

Male: Somehow more specific.

Lecturer: Well 'the' is the definite article and 'a' the indefinite article, so yes, it is more specific. But I don't know why you'd want to change that. Can you tell me, why would you want to change that to a masked man as John's father?

Male: The masked man implies that the masked man is the father to me.

Lecturer: Well that's what it says. I mean this is an identity claim isn't it? The masked man *is* John's father, we are talking about a

particular masked man and saying, of him, that he's John's father.

Male: Then 'the' would stand?

Lecturer: Yes. It has to be 'the' I think. There he believes that the masked man committed the crime, but that doesn't entail that he believes his father did, unless he *knows* his father is the masked man. But that would be to add another premise that we don't have.

Any other thoughts about that one?

(Slide 17) That's another quite common fallacy. I see that often in essays by students.

'The Gambler's fallacy. 'the penny has come up heads 20 times a in a row therefore the penny will come up tails next time.' Why is that called 'The Gambler's fallacy do you think?

Female: They live in hope.

Lecturer: They live in hope, exactly. You might think well it's been on the red, I mean I've never been in a casino in my life, but it's been on the red every time for the last 50 times, therefore it's going to come up black next time you'd think. But actually of course the penny's come up heads or tails or whatever it is falling on the red or the black is quite independent of what it does at any other point. Therefore the chances of its coming up heads or tails is always 50%. So that's always a fallacy as long as the penny is fair, as long as the casino is fair in the case. I mean

obviously if it's skewed then you won't get that. One (question) there and then (another question) there.

Female: I've got an ongoing debate with my son-in-law about infinity and exactly that argument. The thing is that anything that can happen will happen in infinity, therefore you will win the lottery. I argue exactly that. Every time you do the lottery you have exactly the same possibility of winning as you did last time...

Lecturer: That's true.

Female: ...as you will next time. So do philosophers talk about infinity or does that not come into the....

Lecturer: Well of course philosophers talk about infinity, but on that argument it's – I mean what your son is saying is that there is a possible world in which you win the lottery. I mean you would accept that, wouldn't you?

Female: Yes, but that's not what he says, physicists say – well he is, that because there is no end to infinity obviously that anything that can happen, go you can win the lottery will happen, you will win it.

Lecturer: If you play the lottery an infinity of times, you will win it on one of those times. There is a possible world in which you win the lottery, there's no doubt about that. Sadly it's probably not this one. There's one in 14 million chances of winning the lottery, is



that what it is? But I mean that's not to say you won't win it, if you play it infinity of times, of course you will.

So I think your son is...

Female: Son-in-law, but yes. That reasoning is beyond me. An infinite number of universes yes, but not an infinity of one universe I can't think.

Lecturer: Yes, but you can say there's an infinity of possible worlds, okay. In at least one of them you will win the lottery. I mean there is undoubtedly a possible world in which you win the lottery.

Female: Okay, I'll take your word for that.

Lecturer: Yes, but remember I did say it's probably not this one, so don't accuse me of...

Female: The sun has always risen, therefore the sun will rise tomorrow, is this a fallacy?

Lecturer: 'The sun has always risen therefore the sun will rise tomorrow.'  
No, that's not a – well that's not a fallacy but nor is it a deduction. The premise may be true and the conclusion false in that one. That's a straightforward *induction*. You're going on the basis of the assumption that the future will be like the past, you're making a claim. I mean that's not that, is it, because if

you're going to say that the future is like the past, you're going to say the penny is kind of heads 20 times in a row therefore it'll come up heads again. I mean I dare say people do argue like that, don't they?

Do you see how that would be more analogous to that argument than the one I actually got there? The thought here is that if it's come up heads so many times it must be about to come up tails. Well nonsense, because there's no connection at all with whether it comes up heads at one time and comes up tails another or whatever...

Male: Doesn't that disprove your infinity argument?

Female: My very point.

Male: Because every time...

Lecturer: Well no, because infinity is a different one, there is no end to the number of times that you do.

Male: I know, but then there's no end every single time. The lottery is cast in infinity. There is an equal chance that it could be a number one and you've gotten under ten.

Female: Would you like to come to my house at Christmas? I can have someone on my side.

Lecturer: I think I'm going to leave that one with you. I see the point you're making and I don't actually know what to say about it. Because it's certainly true that if every time you play the lottery is independent of every other time you play the lottery which is true.

Female: It has no memory of before or the knowledge of future.

Male: Exactly.

Female: But you're right, it could drive you mad.

Lecturer: If you got a one in 14 million chance then make 14 million into infinity.

Female: No, it isn't, that's the trouble.

Lecturer: It wouldn't work like that.

Male: There is probability...

Lecturer: Is there any mathematician in the audience who can tell us the answer to this one?

Male: You can calculate the probability of that number never coming up.

Female: Probability yes.

Male: And it's a low probability it would never come up, but it's not certain that it will.

Lecturer: I'm going to leave you to think about this.

Male: That's an induction.

Lecturer: I do see your point, yes, because it is certainly the case that you're playing the lottery at any one time is going to be independent of you're playing it any other time.

Female: Yes.

Lecturer: (Slide 18) Okay, the fallacy of 'Undistributed Middle.' 'The middle' is the term that appears in both premises. So here we've got 'All normal cats are four-legged, all normal dogs are four-legged, therefore all normal dogs are cats.' You'd be amazed how often people make that mistake. What you've got there, the middle term is four-legged, and it's undistributed because it's not used in either premise to refer to all four-legged creatures, therefore it can't connect dogs and cats. So it may be true that all cats are four-legged, and true that all

dogs are four-legged, but not true that all dogs are cats. It says nothing at all about whether dogs are cats. Do you see how that works?

So again it's a fallacy. You'll never get a good argument by going from those two premises to that conclusion. At least not unless your son's come up with something.

Female: Oh he will.

Lecturer: (Slide 19) This is 'Amphiboly.' 'One morning I shot an elephant in my pyjamas, how he got into my pyjamas I'll never know.' Okay you can see that that's a fallacy of ambiguity. Who was wearing the pyjamas? Was it that he was wearing his pyjamas when he shot the elephant or was the elephant wearing his pyjamas?

You can see that that trades on an ambiguity of cross-reference. Do you remember anaphoric reference that we talked about when we were talking about analysing arguments. I told you get rid of all cross-references, so if you've got a 'she' that refers back to Susan, then you should replace the 'she' with 'Susan' or with 'the cat' or whatever it referred back to. This is why you should do it, because otherwise it's just too easy to make this sort of error in reasoning.

Again, pretty straightforward I think that one.

(Slide 20) Here's another example of a fallacy that rests on ambiguity. 'All banks are besides rivers, therefore the financial institution where I deposit my money is beside a river.' Here you've got a lexical ambiguity though. What's a lexical ambiguity? Does anyone remember what a lexical ambiguity is in the first place?

Class: It's two words [cross talking].

Lecturer: That's right, there's a lexical ambiguity which is the meaning of a particular word. So I think we used 'rum' didn't we before, isn't it 'rum' or something, and we used 'bank' before, which can also be the movement of a plane, can't it?

What other sorts of ambiguities are there, can you remember? There's lexical ambiguity, ambiguity, cross-reference, we've already looked at.

Can anyone think of another ambiguity? Okay, anyone remember what a structural ambiguity is? 'Every nice girl loves a sailor.'

Class: Yes.

Lecturer: So is it that there is a sailor such that every nice girl loves him?

Female: I would say 'no'.

Lecturer: Or is it that every nice girl loves a different sailor? So that's a structural ambiguity, but this equivocation is a fallacy that trades on a lexical ambiguity. The trouble with most of these ambiguities is that you're looking at the player and you're thinking 'Why would anyone make this error? It's so obviously an error.' But it's not like that. When you're reasoning, you don't make one of these errors knowing that you're doing so.

It's very, very easy to do it without realising that that's what you're doing.

It's by learning to recognise them in cases where you can see that it's a fallacy, that the hope is that you recognise them as you're doing it. That's the idea anyway.

(Slide 21) Okay, the 'Straw Man' fallacy. 'Sunny days are good,' says Jim, and Sally says 'Well if it never rained we'd all starve to death,' at which Jim wants to hit her of course because this is not what she was saying. He didn't say that sunny days are always *only* the good days, that it's never good to have rain, did he? What she's done is she's constructed a straw man of his argument. We do that every time we caricature somebody else's argument. If, in order to argue that they're wrong, we set up their argument in such a way that it's obviously wrong, that in fact it's stupid, then we're setting up a straw man.

This is where, do you remember I mentioned the Principle of Charity last week? This is where the Principle of Charity comes in. It's always tempting if we disagree with someone to create a caricature of their argument. What we should be doing is as philosophers you make the argument opposing your own argument as strong as you possibly can, and then try and knock it down. But if you've done that you've actually done something seriously important, whereas if you construct a straw man and then knock him down, well that's dead easy, that what's straw men are for, the knocking down of.

I've put in a link here to, this is Julian Baggini talking about the Principle of Charity, so I thought you might enjoy that.

That's the 'Straw Man' fallacy and that's a very, very common one.

(Slide 22) This is an equally common one, 'The Slippery Slope' fallacy. 'If we were to legalise assisted suicide we'd effectively be legalising involuntary euthanasia.' Well, *assisted suicide* is where we help someone who wants to die but can't die by their own hand. We help them to die somehow, maybe by taking them to Dignitas or something like that.

*Involuntary euthanasia* is when we engage in a mercy killing with respect of someone who positively doesn't want to die. So there's *voluntary euthanasia*, where we engage in the mercy killing of somebody who has chosen to die and there's voluntary euthanasia, sorry that is voluntary euthanasia. Then there's *non-voluntary euthanasia* where you've got somebody who expressed no opinion, perhaps they're in a vegetative state or something like that.

Anthony Bland, Tony Bland went into a vegetative state at the Hillsborough disaster when he was only 17, and he had never discussed what he would want were he in that situation. So there we're talking about *non-involuntary euthanasia*.

*Involuntary euthanasia* is when you kill somebody who positively didn't want to die.

So this is quite a slippery slope here from assisting somebody who wants to commit suicide to engaging in involuntary euthanasia. But you can see that here you've got, 'If we were to legalise assisted suicide we'll effectively be legalising involuntary euthanasia.' Well nearly everyone thinks that that's unacceptable, I mean it's murder isn't it, involuntary euthanasia. But would we really immediately get there from going there. Aren't there loads of steps in between at which we could stop the slippery slope or are there?

Sometimes those arguments would work, you can see it would just slide down and other times they don't work because you can see a way of stopping it. But that's the difference between



the ones that do work and the ones that don't work, is whether there is a way of stopping the slippery slope.

Male: It's just that from observation that it's called a fallacy, quite often in arguments you hear the word slippery slope mentioned, they say you know 'You can't have gay marriage because it's a slippery slope to marrying your dog.' (Laughter).

Lecturer: I've not heard that one.

Male: But we actually use the term 'slippery slope'.

Lecturer: Yes, but it would be a fallacy of slippery slope if there is really no stopping point on the slope from gay marriage to marrying your dog. It's a bit like this one isn't it, those who don't think it's a slippery slope, who think we should legalise assisted suicide or think we should legalise gay marriage will think that there are lots of places where you could stop the slippery slope.

So it's only a fallacy if, sorry, that argument is only a good argument if there really isn't any way of stopping the slippery slope.

Female: Is it a fallacy if you say is it sometimes but not always true. I've just seen people who, I mean if you were to rephrase and say, 'If you are to legalise assisted suicide you would run the risk of ending eventually in a situation where we're legalising involuntary euthanasia because of the tyranny of small steps and people's reluctance.'

Lecturer: Well it's the tyranny of small steps that's what's behind the slippery slope fallacy. I think if you just changed the wording to 'We'd be running the risk of,' you weaken the argument and in doing so you strengthen it, if that makes sense. You strengthen it because it's not so obvious that the premise is true and the conclusion is false. But you'd still be open to somebody say 'Well that's no risk we're running at all, we could easily stop that going from one to the other.'

Female: Yes, of course, but wouldn't it be by [inaudible] call it a fallacy by...

Lecturer: The fallacy is where the premise is true and the conclusion is false or can be false. Here you want to say 'Well, okay, this is a case where the premise is true and the conclusion is not at all obviously true, because we could stop that slippery slope by regulation or whatever.' So the series of small steps has a point where this is not like saying 'Well, he's not bald, he's not bald, he's not bald he's not bald, but he *is* bald.' There's a point at which you can say, 'Well, actually we don't know whether someone's bald or not.'

Everyone accept that? We're getting through these at a hell of a pace. I'm just thinking actually that...

(Slide 23) Okay 'Begging The Question.' Okay, 'It's always wrong to kill human babies. Therapeutic cloning involves killing human babies therefore therapeutic cloning is wrong.' Now this is begging the question, because it's assuming the conclusion in the phrasing of the premise. Can you see what it is that begs the question in this argument?

Female: Is an embryo a new baby?

Lecturer: That's exactly what we're sort of assuming here, because what you're killing, in therapeutic cloning, is a human embryo below 14 days after fertilisation. So it's very, very young, can you really call it a human baby? Surely in calling it a human baby you're begging this question here or writing into the premise something that makes the conclusion true.

You can see the similarity with the circular argument. What's the difference do you think between this 'begging the question' and a circular argument? Do you remember a circular argument - is a circular argument valid or not?

Male: Yes, it's valid.

Lecturer: It is valid, that's right. Can anyone tell me why?

Male: Because premise is part of the conclusion.

Female: Explicit.

Lecturer: Can you put your hand up and tell me so I can hear you.

Male: Its premise is in the conclusion.

Lecturer: Its conclusion is amongst the premises, the other way round, that's right. It's a circular argument if the conclusion is amongst the premises. But that's not true here, is it? That conclusion isn't amongst the premises exactly, so what's different here?

Female: The premise is implicit rather than explicit.

Lecturer: Good, yes, well done. The premise is implicitly contained in the premises here, sorry the conclusion is implicitly contained within the premises. Whereas with a circular argument the conclusion is explicitly contained within the premises. That's exactly right.

Good. I think that's all the examples.

(Slide 24) That's only a tiny number of the fallacies that we might have looked at. As I told you earlier, there are 208 just in the Internet Encyclopaedia of Philosophy. (Slide 25) Here are some resources. So that's the internet encyclopaedia of philosophy where all those fallacies are listed. It actually goes through them, you can click on each one and see an explanation of it.

So if you read about a fallacy and you don't know what it is, you can go here and find out exactly what it is.

This one, it gives a longer and probably more in-depth explanation, but of only 43 fallacies. But this has some very useful links. I recommend that. This is a brilliant website for fallacies. That's where I got this taxonomy of fallacies and it explains exactly what each one is and it gives you examples of each one and so on. So I really recommend that quite highly.

(Slide 26) So we're on to your questions now and you all have brought loads, so just as well we've got all this time left.

So who's got the first question for me? You've all gone very quiet. You're all avoiding my eye.

Female: How, has anyone described the opposite to the Principle of Charity? You can identify the various special ways of being uncharitable, but if it is a very consistent way of applying the misrepresenting your – is that an opposite or malignancy, principle of malignancy or something?

Lecturer: No. So the question was, 'is there an opposite of the Principle of Charity?' Principle of malignancy or something was suggested. I think nearest you get to the opposite of Principle of Charity is constructing straw men. I don't think there is an opposite.

What the Principle of Charity does is it tells us that we don't interact in communication with people we don't believe are rational on the whole. When you interact with each other, when we interact with each other we do so on the grounds that the other person is as rational as we are. So why are you here today? Here's an answer, you all a few months ago saw an advertisement in a paper that said there's a series of lectures on critical reasoning. You thought 'Oh I'd quite like to go to a series of lectures on critical reasoning.' You noted the date, you came up for the first time and you're still here, so you obviously thought it was quite a good thing.

So I can explain the reasoning behind your sitting here today. That goes towards my belief there isn't anyone in this room

who isn't rational. I mean that's good evidence for the fact that you're all rational.

So if I say, say I don't know your name.

Male: Roger.

Lecturer: Roger, if Roger and I are talking and he said something that strikes me as blindingly obviously stupid, forgive me. I'm sure this wouldn't happen but if it did, I can respond in several different ways to that. I can think 'Well, God, that was a stupid thing to say. I'm not going to talk to him anymore because he's obviously irrational.' But of course who's being irrational now?

Female: You.

Lecturer: Me. Exactly so, because I've got one belief 'Roger is rational', albeit a belief I haven't really noticed, it's just a presupposition of all my interactions with other human beings. So I've got one belief 'Roger is rational' and I've got some evidence against that or what I'm taking to be evidence against that.

Well, okay I don't know actually which is wrong there, do I? I know one of them is wrong, either it's not true that Roger is rational or it's not true that he's *not* rational. What I need to do is find out a bit more. What's the obvious thing to do? Ask him why he said that. Maybe I'm wrong. So if it's that he said something obviously false for example or by my likes obviously false, so I believe 'P' and Roger's just expressed 'not-P', well I need to say to Roger 'Why do you think not-P?'

I always use rats to illustrate this, I don't know why. But let me do it again. If you've got two rats, one of which is being conditioned in such a way that every time there's a sound it gets a food pellet. So it hears this sound, it rushes to its food bowl and there's a food pellet. There's another rat that's also been conditioned but every time it hears this sound it gets an electric shock.

Now the experiments that they've been undergoing have finished. So the two rats are put in the same cage. Then they both hear this sound. While one rushes to its food bowl the other cowers in the corner and each looks at the other and thinks they're mad.

What they should actually know is that the belief that they thought was universal, in other words 'whenever that sound goes off a food pellet will be delivered' or 'whenever that sound goes off I'll get a shock', actually they weren't universal. It was, '*In my experience* every time there's that sound I've got a food pellet. *In my experience* every time there's been that sound I get a shock.'

You haven't been to all the places in the world. I mean we've been to quite a few places that are the same. We've both been to the common room, we've both been to Rewley House, I daresay we've both been to Devon and seen Oxford. But there are probably lots of places that you've been that I haven't been and vice versa. How do I know what happens in the places you've been that I haven't been.

So the Principle of Charity is a way of saying that when you're interacting with another rational person and you think that they say something that's wrong, always entertain the possibility that the error is *your own*.

So always treat irrationality or the appearance of irrationality or falsehood as evidence for error, but whose error, you don't know, it could be your own. That's what the Principle of Charity is about. You can see why it's hugely important in argument because you really don't know, all you've got is defeasible evidence of error. Whose error? You don't know.

Male: Can I just go back to fallacies please. All the examples you gave us seem very obvious to me, and I'm slightly worried how I might spot a fallacy when it's not quite as blindingly obvious as you've been giving us?

Lecturer: As I was going through them I was thinking this is getting a bit boring, isn't it? This is just me going through fallacies, and actually, of course, they are obvious when you put them out like that. Maybe next time I'll teach them differently, but I'm not sure how to teach them differently. I suppose the thing to do would be to choose examples where it's not quite so obvious that they're fallacious.

Male: You say you've come across students that have made these fallacies, but presumably the student didn't actually know at the time they were making a fallacy.

Lecturer: No, they didn't, no. When you make them you don't know you're doing it. When you set up straw men for example, your thinking goes, 'Well it's so obvious that this argument is wrong, that this is basically what he's saying.' It is obvious to you, but of course actually the other person wouldn't be making the argument if he thought it was that...



Male: Yes.

Lecturer: ...obvious.

Male: I find it slightly worrying because I'm still not I would spot a fallacy.

Lecturer: I tell you what, go on to one of those websites, especially the fallacy files, and have a look at the examples there. I fear that you'll probably still think they're obvious, because when you're teaching a fallacy you do tend to use an obvious. I should collect, if Plato could collect fallacies why can't I collect fallacies?

Male: We don't use fallacies for effect, we knowingly use fallacious arguments. Politicians, many of whom studied Philosophy, Politics and Economics right here in Oxford, some of whom you might even have taught philosophy, they know perfectly well a fallacious argument and yet they go right ahead and...

Female: That's right, they do it all the time.

Male: ...use them every day. They construct straw men for effect.

Lecturer: Well certainly they construct straw men, I mean the other thing they do is use a reductio ad absurdum. Does anyone know what a reductio ad absurdum is?

Male: Yes.

Male: No.

Lecturer: Okay, unfortunately they've taken my – they really have taken my flipchart away so I can't...

Male: [Response from member of the audience] ridiculous extreme.

Lecturer: Right, you're just going to have to imagine that I'm writing on here. So a reductio ad absurdum is a valid argument where the conclusion is obviously false. If the conclusion is absurd what do we know? So the argument is valid and the conclusion is false, what do we know?

Male: The premises must be [Cross talking].

Lecturer: At least one of the premises, not all of the premises, but at least one of the premises must be false, so you use a reductio ad absurdum. If you were wanting to make a nonsense of your interlocutor's premise then what you do is you reduce it to absurdity. You show that from that premise you can get an absurd conclusion. That's a very common way of arguing.

Male: Which is like begging the question.

Lecturer: But of course it has to be a valid – no, it's not begging the question.

Male: No?

Lecturer: No, begging the question is implicitly containing in your premises your conclusion.

Male: Okay.

Lecturer: Which is a very different thing from taking your opponent's premise and reducing it to absurdity.

Male: It might be a slippery slope though. (Laughter).

Lecturer: It's more like slippery slope, yes, exactly.

Female: People usually preface that with if you take your argument to its logical conclusion...

Lecturer: Yes, exactly so, and of course it has to be a logical conclusion. You have to have a deductively valid argument to reduce something to absurdity, because it's because it's valid and the conclusion's false that you know that one of the premises must be false. Of course the assumption is it's the premise that you're arguing for, you idiot, implicitly in the way of doing it.

Male: I'm intrigued that you argued that because we're here today we are more rational...

Lecturer: No, I didn't say you were more rational, no, I just said you were rational.

Male: You were rational, I would argue exactly the reverse.

Female: Oh God.

Male: We're here because we recognised at one time or another we'd behaved irrationally and we hope at the end of this course to do it less often.

Lecturer: But in saying that you fall right into my hands because irrationality is a failure in the house of reason, isn't it? So if you've caught yourself being *irrational* you must be *rational*. Mustn't you?

This table can't be irrational and it certainly can't catch itself being irrational. Maybe this table is rational, maybe all its life

its wanted to be at the centre of the universe and it believes it is at the centre of the universe. So it's doing exactly what you would do if you wanted to be at the centre of the universe and believed yourself to be at the centre of the universe, it's staying exactly where it is.

Female: You said in the beginning that not only [inaudible] it's actual is real, so you must have a definition for what is real.

Lecturer: No. Okay, the question was I said at the beginning that it's not only what's actual that's real. Sorry I've forgotten your name again.

Female: [Orsa].

Lecturer: Orsa. I must have a definition of what's real. No, I don't have a definition of what's real, but I do know that there are things that are not actual that are real. For example, I know that possibilities are real. Knowing that I know that what's real includes not only what's actual but also what's possible. There are real possibilities. There are real probabilities.

Female: The real possibilities are possibilities which may, where they may actually become actual.

Lecturer: They are actual possibilities, yes. I mean it is actually now possible that I could have been wearing jeans, isn't it? I mean the question of what limits the possibilities is I think one of the

best questions in philosophy actually. I mean could I have been male? That's a really interesting question. Could I, this very person standing here, could I have been male? I mean could I have been a hippopotamus? Could I have been a safety pin? What if those things aren't possible, why not, what limits those possibilities?

So we've got logical possibilities and physical impossibilities and in each case we want to know what limits them.

Male: I was just going to say that in Plato's ideal world maybe you are a hippopotamus.

Lecturer: In Plato's ideal world? I don't think...

Male: Not ideal world but the idea of world.

Lecturer: The world of ideas?

Male: Yes.

Lecturer: Yes, I mean there aren't any individuals like me in the ideal world. There's the ideal form of human. There's the ideal form of woman perhaps, of course that is me.

Male: We don't know what that is. But we don't know what that is, so that might as well be a hippopotamus for all we know.

Lecturer: The ideal woman? (Laughter).

Male: We have no idea, do we.

Lecturer: Well, I think we have some ideas. I mean it's more likely that I could be male than that I could have been a safety pin.

Class: Yes.

Lecturer: So we have some way of spinning the possible worlds, don't we?

Male: Because we see the shadow of the real thing according to...

Lecturer: Well I mean at least a man is human, well some of them anyway. I do apologise. As I'm human it's more likely that I could be a man than that I could be a safety pin. I suppose that's what we're thinking there.

But the idea, the possible world theory within philosophy as opposed to within physics. Possible world theory is set up by a chap called David Lewis to explain the existence of real possibilities and also the existence of conditionals.

I wish I had a flipchart, I hate not working with a flipchart. So there's a type of conditional called counterfactual. A counterfactual, the antecedent clause is false. So if Marianne

were wearing jeans it would be Friday. Well that's a counterfactual because the antecedent clause, 'Marianne's wearing jeans' is false. So we can, according to Lewis, who developed this theory, in order to evaluate that what we've got to do is to find the nearest possible world in which Marianne's wearing jeans.

Now that's a pretty close world, I may have got up this morning decided to put jeans on. But here's another possible world. 'If the Germans had won the war we would be speaking German.' Now we've got to find the nearest possible world in which the Germans won the war and decide whether in it we speak German or not.

Actually the question of what makes the counterfactual true is a very difficult one, isn't it? Because if you think, if you've got a conditional with a false antecedent clause, then we do say these things are true or false. I mean do you think it's true that if the Germans had won the war we'd be speaking German?

Female: Yes.

Male: No.

Female: Yes.

Lecturer: Okay, some of you think yes, some of you think no. But all of you who think either yes or no think that we can assign a truth value to a counterfactual conditional, don't we? Well, how? Because there's nothing in this actual world that makes it true



or false that had the Germans won the war we would be speaking German, is there?

So somehow we've got to access possible worlds in order to determine the truth value of a counterfactual. Fascinating, isn't it?

Male: That's a possible world at the moment but not a probable world. Is there any way of defining when a possibility becomes a probability?

Lecturer: Well, you'd have to go probability theory for that, and of course that can assign probabilities to some things and not to others. So no, there's no systematic way in which you can say of every possibility whether it's a probability or not.

Male: It's a matter of individual judgement.

Lecturer: It's usually a matter of individual judgement.

Male: I might frequently argue with somebody that it's a possibility that, and the other person will say 'It's more than that it's a probability.' No, it's a probability to them and a possibility to me.

Lecturer: Yes, usually you've then got to ask them for their reasons for thinking that. I mean you might agree that it's a probability. I mean saying that it's a possibility doesn't mean you don't think

it's a probability. But if you don't they'll have reasons for thinking it's a probability and you'll have reasons for thinking it's not a probability, and that's what you argue about.

Male: There's no harm in for us [inaudible] that comes.

Lecturer: No.

Male: We talk about worlds, I mean even some of the examples is that if you were inventing enough you could produce weird worlds that produce certain results. So what's concerning me is when we talk about these things, when we talk about worlds, is there anything that can sometime constrain them?

Lecturer: Do you remember I said what we're looking for is what limits the possibilities? That's what you're asking basically. There are some things that are physically possible. Well, what makes them physically possible? What stops something being physically possible answer the laws of nature? We know some of the laws of nature but we certainly don't know all of them. So there's immediately going to be quite a few things where we don't know whether they're physically possible or not.

With logical possibilities it's easier, because of course it tends to go with conceivability. So if you can conceive of it then it's logically possible and if you can't conceive of it then it's logically not impossible.

So can you imagine a square circle? Answer no, you can't, because you only have to put the two concepts together and you see that this is an impossibility. But this is actually not very

reliable because, and I haven't got a flipchart, this is so irritating. Let me see if I can get this up.

I'm sure there's a way of doing it, but I don't know how to do it. No, I don't know. Let's see if I can do it without a flipchart or a screen.

'Water is H<sub>2</sub>O', is that – oh you're going to get me one Steve? You're a star.

'Water is H<sub>2</sub>O', now can we or can we not conceive of the possibility that that's false?

Male: No.

Lecturer: Might it not have been H<sub>2</sub>O, might we have discovered that it was something else?

Male: Yes.

Male: Yes, that's linguistic.

Lecturer: Yes or no, but hang on, here comes a flipchart. You're a star.

Female: It's physicists [1inaudible].

Lecturer: Those of you who think that it is possible to conceive of it's not being H<sub>2</sub>O, why? Because you think we might have discovered it to be something else?

Male: Yes.

Lecturer: Okay.

Female: No, [inaudible].

Lecturer: This is all my writing. There we go. The question is, is this – actually let's not say - is this necessarily true or not? So those of you who think it's necessarily true, is that because you think water is *defined* as H<sub>2</sub>O?

Female: Yes.

Lecturer: So you're saying that yes, because 'water', the word *means* it's H<sub>2</sub>O.

Female: Talking about it as a symbol or as two hydrogen atoms and one oxygen.

Lecturer: Yes, H<sub>2</sub>O, 2 hydrogen atoms and one oxygen.

Female: You're not saying the symbols.

Lecturer: Yes.

Female: Yes, I mean meaning what's behind it.

Lecturer: Yes, I do mean what's behind it. So okay, those of you who are saying no, why not? Because it might have been discovered that it wasn't H<sub>2</sub>O? We could have discovered that it was XYZ.

Male: H<sub>3</sub>O.

Lecturer: That seems to be a good argument for each side, doesn't it? So now we're left thinking well which is the case? Well, a chap called Kripke, Saul Kripke, who's a philosopher and a logician, world famous one to other logicians that is, still alive, he believes that actually this is *epistemologically* non-necessary and *metaphysically necessary*. Let me explain that.

It's epistemologically non-necessary because it seems that we can conceive that that's not the case. Do you see what I mean? So we can imagine that science might have discovered that water was something other than H<sub>2</sub>O. It doesn't seem to have been necessary that science discovered that water was H<sub>2</sub>O. It surely could have been something else. When science discovered that water is H<sub>2</sub>O, science wasn't in the business defining the word water, it was in the business of telling us something about water, wasn't it?

So before we discovered that water was H<sub>2</sub>O, we knew what water meant. It wasn't that we didn't know the meaning of water and science has now told us, then it's just a factor about water that we didn't understand.

So that makes it look as if it's at least epistemologically not necessary. We want to say that it's not necessary true, but says Kripke, it's metaphysically necessary, because if water is H<sub>2</sub>O then water is *necessarily* H<sub>2</sub>O.

There isn't a possible world in which there is some liquid that's exactly like water, and yet not H<sub>2</sub>O. Are you with me?

Class: Hmm.

Lecturer: So both the sides of the argument. It's not that when we say water means H<sub>2</sub>O in this sense, it's more that what Kripke thinks is we pointed to water and said 'that's water.' When we said 'that's water,' we intended that anything that's sufficiently like that, that shares the same real essence of that stuff there is water. So in a way we embodied when science discovered what the real essence is, what it discovered was water is.

So do you see how again you get both these arguments in? So epistemologically non-necessary, and metaphysically necessary.

Who knows about the Twin Earth arguments, anyone?

Female: Yes, I came across it on a course I did, but I wouldn't say I know it.

Lecturer: Would you like to explain it?

Female: I was just looking at the notes but no I wouldn't like to explain it. It's Hilary Putnam.

Lecturer: That's right. Let me see if I can explain

Okay, you've got to imagine there's another possible world that is exactly like this world, except for something that I'll mention in a minute. So there's Earth and there's Twin Earth, let's call it, and Twin Earth is exactly like Earth except that whereas water is H<sub>2</sub>O on Earth, on Twin Earth it's XYZ. But otherwise Earth and Twin Earth are exactly the same. Annoyingly when Putnam thought of this thought experiment he forgot that we actually are constituted of 99% of water which makes it a bit difficulty.

I'd go along with thought experience in the spirit in which it was meant. On Earth there's somebody called Oscar, and on Twin Earth there's somebody called Oscar who is the doppelganger of Oscar. So we're going to call him Toscar, because he comes from Twin Earth.

So there's Oscar from Earth and Toscar from Twin Earth and they are physically or physiologically identical and that includes neurophysiologically identical. They're phenomenological identical, so the world appears to them in exactly the same way. Any experiences that Oscar is having are also experiences that Toscar is having. They're also functionally the same. So everything that Oscar does, twin Oscar does.

So these two worlds are exactly alike except for this one difference. Are we alright so far?

Class: Yes.

Female: No.

Lecturer: No, okay.

Male: Can I put a kind of slight rider on what you're saying, do the laws of physics apply in both worlds?

Lecturer: Well you've got a problem there because of course in this world XYZ.

Male: So what I'm saying is that I would accept that there can be XYZ sort of, if you said X<sub>2</sub>Y and dropped the Z. In other words the ratio of the two things that we call hydrogen to the ratio of the things we call oxygen, it could be X<sub>2</sub>Y.

Lecturer: Well I don't think that's going to change anything I'm going to say by saying that except we mustn't think of X as H.

Male: Yes, but it's an equivalent to H.

Lecturer: It's true that water...



Male: Because otherwise it wouldn't be water.

Lecturer: ...or twater non Twin Earth and water on Earth, they look the same, they taste the same, they behave the same in experiments and so on.

Male: But they're not made of the same chemical.

Lecturer: They are not molecularly identical

Male: In which case they're not the same, they're not twins.

Lecturer: Yes, they're different stuffs.

Male: They're not dopplegangers

Lecturer: They look and behave exactly the same, even though they're structurally different. You don't know what the laws of nature would be in another world, so you don't know that there can't be a world like that.

Male: But the laws of nature are universal.

Lecturer: In this world, but there are different possible worlds.

Male: In this universe.

Lecturer: Come on, there are worlds where pigs can fly. You can't tell me that the laws of physics are the same in every possible world, what makes you think that?

Male: In this universe.

Lecturer: That makes the laws of logic not...

Male: In this universe there are. If it's a different universe...

Lecturer: But when different possible worlds are different universes.

Male: Just say they're different universes.

Lecturer: They are different universes.

Male: Yes, just say different universes, I'll shut up.

Male: Unless performing the same function as that...

Lecturer: Did you say you'll shut up, okay let him shut up.

Male: No, no I said if you call it a different universe.

Lecturer: Okay, because I got the thought experiment out yet so let me get the thought experiment out and then you can try again.

Here is a glass of water and here is a glass of twater. This is H<sub>2</sub>O and this XYZ. Let me call this XYZ it's just easier. Twin Oscar, this is him, he thinks this is water, because of course Twin English is exactly like English, and he says 'this is water' and Oscar does exactly the same. So he thinks this is water and he says 'this is water'.

The question is does 'water' in the mouths of each of them have *the same meaning*? You might want to think 'yes', because in each they refer to something that behaves in the same way that looks the same, that tastes the same, dah, dah. But then imagine that overnight Oscar moves to Twin Earth. Here we have the glass of water, and both Oscar and Twin Oscar, so that's Oscar, that's Twin Oscar, are looking at this and he's thinking *this is water* and he's thinking *this is water*. The trouble is he's right (Toscar), isn't he? And he's wrong (Oscar).

Female: Yes, it's twater, isn't it?

Lecturer: Yes, because if that's not H<sub>2</sub>O then in his mouth this isn't water. The problem that this sort of experiment brings up is if they're physiologically identical, if they're phenomenologically identical and functionally identical, then how can their words

have different meanings? What Putnam claims that shows that meanings aren't in the head, that meanings are environmentally determined. Worst, it shows that thoughts are environmentally determined as well.

So it can't be the case that what you're thinking is a function of what goes on inside your head, because it's also a function of what goes on in your world. Do you see how we get that from that thought experiment?

Female: Isn't that interpretation not thinking? He's interpreting that glass of as rather than...

Lecturer: Put it this way, if you think this is water, said of a glass of H<sub>2</sub>O, it's true, isn't it?

Female: In this universe, yes.

Lecturer: Well, that's what we mean by 'water' and we take our meanings into other universes. If I say that two plus two equals four is a necessary truth, do you see how in doing that you have to take the meaning of 'two', and the meaning of 'plus', and the meaning of 'equals', and the meaning of 'four' into the other worlds, because if you change those meanings that stops being true. Doesn't it? 'Two plus two equals four' is true in every possible world.

Female: That's the bit where I disagree with you.

Lecturer: No, you have to agree with me because it's true. Look at this, 'two plus two equals four' is true in every possible world. Now it's true that if you change the meaning of 'two' to mean 'three', then 'two plus two equals four' is not true even in *this* world, if you change the meaning of 'two' to mean 'three'.

Male: It would be one more.

Lecturer: But actually then we're talking about something completely different, aren't we?

Male: Yes.

Lecturer: Any sentence to determine whether it's true we've got to take into account both the way the world is and the meaning of that sentence.

Female: For me it's exactly that saying 'the way the world is.' If I describe gravity by dropping an apple, it's going to fall. If I'm suddenly transported to the moon, my knowledge of gravity goes out the window.

Lecturer: But not your knowledge of the meaning of words. I mean it's certainly the case that the world makes true our statements, makes true or false our statements. But the meaning of the statements also must go with it as well, mustn't it? I mean if I say 'that chair's blue', then that is true. Well, it's true both by

virtue of that chair being blue and by virtue of the meaning of this sentence.

If I say, look in the context of this room by 'blue' we all mean *red*. We're doing this because we don't like anyone else in this building, we're going to fool all of them. We mean 'red' by 'blue'. If I now say 'that chair's blue', it's false, isn't it?

Female: Yes.

Lecturer: So the meaning of the word is as important in determining the truth value of the sentence as how the world is.

Female: And it's very contextual, isn't it?

Lecturer: Yes, I mean 'blue' in another language may mean something completely different. But as long as we keep the meaning constant then we can look to the world to determine the truth value. If we change the meaning we don't know where we are at all. So when I say 'two plus two is four' is true in every possible world, I'm saying that on the basis of our normal understanding of the word 'two', normal understanding of the word 'plus', normal understanding of 'four'. If you change the meaning, then of course it's not true, but then we don't know where we are.

Male: It's a base less than five.

Lecturer: Say that again.

Male: And it's a base less than five.

Lecturer: Possibly.

Male: Because if it is three like you said earlier, two plus two would be one zero, whatever, do you know what I'm saying, it's the same as the...

Lecturer: But as long as we keep the meaning constant, we keep the truth value constant, that's the important thing.

Male: Yes, exactly.

Lecturer: So when we say 'this is water' and we said of a glass of H<sub>2</sub>O, we know that that's true, don't we? If we say it's a glass of XYZ, it's not true, is it?

Female: No.

Lecturer: If we say it's a glass of gin before we taste it.

Male: Why isn't it actually [cross talking].

Lecturer: I'm going to need a glass of gin of this lot.

Male: Why is it not true, because if you take into account what you said about the environmental context, it is true. It's as true as [inaudible].

Lecturer: Well no, because if Oscar means by 'water' H<sub>2</sub>O, then if he's saying it's a glass of XYZ...

Male: Water is a label, as you know, as you said before, before the H<sub>2</sub>O analysis was done, he meant that liquid stuff that we drink, that keeps us alive. That's what he's referring to when he's on planet Zog.

Lecturer: So by...

Male: If by water what you mean is the substance that's in front of him that happens to be XYZ is still...

Lecturer: Okay, so what does 'water' mean? Does it mean that stuff we drink, wash in? so there's a sort of functional definition of water, in which case it could be H<sub>2</sub>O or XYZ. Okay, and could it also encompass, or is it the case that anything that is not H<sub>2</sub>O is also not water, which is what most people were saying before we've come up with this idea.



I mean another possibility, just imagine that all the times that we've checked the structure of water before have been in Oxford. It just so happens that nobody has actually done it anywhere else. Now some chemistry students in Cheshire are just messing around a bit and they discover 'Oh, the stuff we wash in here and drink and so on is XYZ.' Now at that point you really would want to say that water is H<sub>2</sub>O *or* XYZ, wouldn't you? In which case the twins, both their beliefs are true.

But if you do think that water is *necessarily* H<sub>2</sub>O, that science has discovered that it's a fact about water that it's H<sub>2</sub>O then XYZ isn't water and Twin Oscar is saying something false.

The reason we got into all this incidentally because you came up with no questions.

Male: But it's great fun.

Male: Could I take us back to induction please?

Lecturer: Well hang on there's a question here about Twin Earth.

Female: My question is why were we talking about it?

Lecturer: Why were we talking about it? There you are, well that's right...

Female: I think you're making the point around everything is relative to culture, is that right?

Lecturer: No, absolutely not, no. Why was I talking about it?

Female: It's on the floor.

Lecturer: There was a reason why we were talking about it.

Female: You [inaudible].

Lecturer: I know we were talking about what limits the possibilities, weren't we?

Male: Constraints of the [inaudible].

Lecturer: We made a distinction between the laws of nature limit the physical possibilities and the laws of logic limit the logical possibilities, but that this doesn't necessarily tell us what is and what isn't possible. I mean is it possible that water could be XYZ or not? That's why we started talking about it.

We're now deep into philosophical logic, the philosophy of logic because what we're interested in is identity claims. 'Water is H<sub>2</sub>O', is that a necessary statement or a contingent one? So one question and then two questions.

Female: I always struggle with trying to make sense of what they had problems in middle ages, nominalists and the...

Lecturer: And essentialists.

Female: Yes, is that somehow example of [cross talking].

Lecturer: Yes, this is right in this area.

Female: Could you...

Lecturer: Yes, a nominalist is someone who believes that – well, an essentialist is someone who believes that something has a real essence. So there is a real essence, something that makes water water and the job of science is to find out what that real essence is. Having found out what it is, we then know that nothing could be water without having that real essence.

So when science discovered that water is H<sub>2</sub>O they discovered the real essence of water. Other people are nominalists, and Keith is obviously one of them. A nominalist is someone who says 'Well, if you take a tiger, tiger is a large feline sort of animal with orange fur and black stripes and large claws and teeth etc. That's what a tiger is.' There's no real essence to a tiger, there's no DNA that makes it a tiger.

That's a nominalist because what they're doing is they're saying that the name is defined by a list of properties, if you like, rather than by a real essence. That's what the debate is between the nominalist and the essentialist.

Female: Is it anything to do with the philosophy of language?

Lecturer: The philosophy of language is very interested in this because of course we're interested in what determines the meaning of 'water' as well.

Female: Convention, it can be same thing, and H<sub>2</sub>O is another convention.

Lecturer: We know that language is conventional, but what we want to know is when we say 'That's water,' does the 'that' mean the stuff with the same real essence as the exemplar I'm pointing to, or does it mean the stuff with the same function as the stuff I'm pointing to, or does it mean the stuff that meets the same description as the stuff I'm pointing to. Each of those could be – and you can see why we don't think a tiger, you can see why you might want to be an essentialist there, mightn't you? There is something that makes a tiger a tiger that isn't to do with its fur and its stripes and so on.

I mean if anything the explanation works in the other direction, it's because a tiger is a tiger that it has these stripes and what have you, rather than it's because it has these stripes that it's a tiger.

So the properties by which we recognise that something is a thing and the properties that make it such a thing, and they seem to be rather different properties.

Another question, oh you had induction, sorry we'll come back to you.

Female: It's a thought. It seems to me from all we've done that arguments deductive validity within deductive arguments are essential for scientific developments to take place...

Lecturer: Both induction and deduction is essential for scientific development.

Female: Okay, but absolutely crucial there, whereas if we're dealing in the realms of politics or interpretation of history or whatever, we're more likely to need to deal with inductive arguments...

Lecturer: No, I'm sorry that's a complete misapprehension. I apologise. But no, science cannot do without induction.

Female: No, I recognise that but they can't do without deduction either.

Lecturer: No, none of us can do without either but all of us, whether we're doing politics or art. When I say when we're doing art, artists probably don't need to use logic at all, but we certainly need to use *reason*. I mean I want something to look like the sky. The sky can be purple therefore I'll look for my purple paint. Even an artist must use that sort of logic.  
But no, you can't divide up induction and deduction and say...

Female: No, I wasn't trying to divide them like that preponderantly.

Lecturer: All of us need both at all times.

Chris, you had a...

Male; Yes, I'm interested in when an inductive argument becomes sufficiently strong it appears to tip over into a deductive argument.

Lecturer: No, it never tips over into a deductive argument.

Male: That's why I said appears. If I drop my pen, it falls on the floor, I can say that's because every time I've dropped my pen it's fallen on the floor. Then I might want to say that there's a necessary cause of this which is Newton's laws of gravity. So at that point it seems...

Lecturer: Well that's *physically* necessary but not *logically* necessary.

Male: It seems to me then an inductive argument, if indeed it was an inductive argument, seems to become a deductive argument...

Male: It's a different argument.

Lecturer: No, you're still resting on the Principle of the Uniformity of Nature. I mean you're assuming the Newton's laws will be the same next time you look as they were this time they looked.

Actually we've got quantum mechanist to tell us that that's not the case.

So you're still using induction there.

Male: So you're saying that the law is not a necessary condition to explain something...

Lecturer: It's not *logically* necessary condition, it may be a *physically* necessary condition. Remember that distinction we made right at the beginning between logical necessity and physical necessity. So Newton's laws, well not even physically necessary, but they were believed to be physically necessary for many years, but they're certainly not logically necessary.

One more question then we'll...

Male: I was just going to say could move onto where we might go from...

Lecturer: There we go. I've got trigger finger, has anyone ever had that?

Female: Yes.

Lecturer: God, it's painful. Right, where do we go from here? Sorry. (Slide 28) Okay from OUDCE, from Oxford University Department of Continuing Education that's the website. We do weekly classes. So every term we have about six or seven different types of weekly class and actually I'm meant to bring

in some leaflets for you, but there are all sorts of things from aesthetics to philosophy and maths to all sorts of things. I mean every term as I say.

Next Michaelmas, I'm going to, which is this term, autumn term, I shall be doing some lectures, the same lectures next year but on philosophical logic. So that's the philosophy of logic.

You'll have heard me using words like 'identity', 'truth', 'existence', well the philosophy of logic looks at what existence *is*, what identity *is*, what truth *is*. So it tries to look behind the logic at the concepts that we have to use in using logic and saying 'Well what do we mean by these?' So I'll be doing those on 14<sup>th</sup> October 2013. But there are lots of weekly classes other than the one I do. I only do one a year and you'll find lots of others if you look at the prospectus.

We also do lots of weekend schools. We do seven a year and there's a weekend school I'll be doing, 'Getting Started on Formal Logic' on October 26<sup>th</sup>, and 27<sup>th</sup> 2013. But there are lots of other weekend schools. For example, we've got one on philosophy and literature coming up. We've got one on philosophy of maths I think coming up. So what is a number?

We've got one on philosophy of the family, just to show that we really go in all – the nice thing about philosophy you can do everything. There is nothing you can think about that doesn't have a philosophy of attached to it, which is why philosophy is so wonderful.

We also do summer schools, so these are weekly summer schools and they're residential or if you live in Oxford you don't have to be residential. We've got online courses and there's several of them written by me. There's one called Critical



Reasoning, will be launched next year I think sometime although at the rate I'm writing it, it won't be next year.

But we've got ten online courses, so you can do Metaphysics, you can do Epistemology. Metaphysics being the theory of what there is and what its nature is and epistemology being the theory of knowledge. So what counts as knowledge, what counts as justification and so on.

In this one there's an introduction to philosophy which is a very good course if you're just starting on that the introduction to philosophy is one that I'd recommend. But there are lots of others, ten others and there are more in the pipeline at the moment. You can find out about all these on that website there, and of course that'll be in the hand-outs.

Then there are the podcasts, I've been told they are also called vodcasts, there are both video and audio. I've never heard of the word 'vodcast' before, but anyway here's where you get them. You'll find mine on there as well. Last season's critical reasoning course plus mind and various other things, that's the website. There's my website. You'll find the podcast on there as well. There's my Twitter feed, do come and tweet, and my Facebook page which I'd like you to like just because I like being popular.

That's where you go from here. Does anyone have any questions about that? No, in that case...

Male: My question would be effectively if you took what we've learnt over these last six weeks and you wanted to hone those skills further, what would be the direction you go in?

Lecturer: The ones I've mentioned. So philosophical logic, the next term.

Male: In a year's time?

Lecturer: In a year's time, yes.

Male: I'm thinking more immediately.

Lecturer: Well, these lectures are being podcast now and they'll be ready – when will they be ready, Steven?

Male: A few weeks, six weeks.

Lecturer: That's these lectures, but you'll already find my last lot of critical reasoning lectures on the web from last time. There are lots of other things on the web. I've given you resources all the way through so I would follow up on some of those.

That one will take you to the next step. So that's getting started on formal logic. That'll be A's and B's and P's and Q's and things. So that'll be fun I think.

Any other questions on this? No, if not, thank you very much and I really enjoyed teaching all. (Applause).