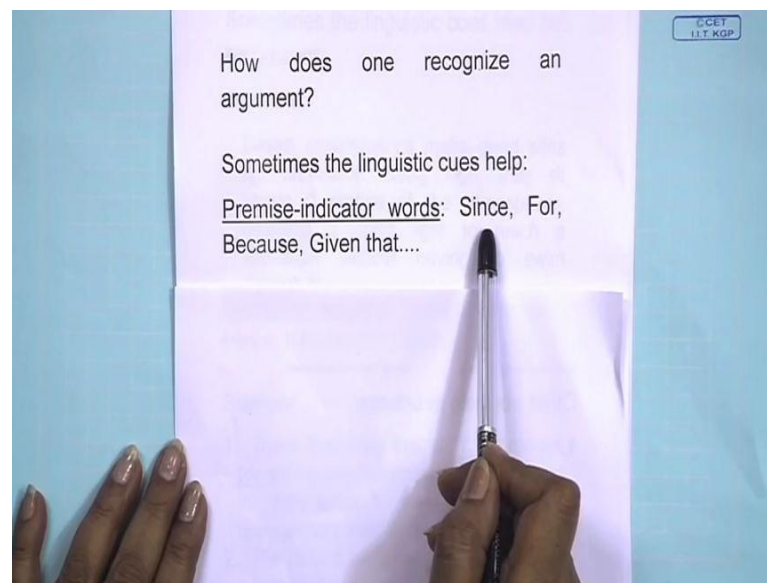


Symbolic Logic
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Lecture - 03
Recognizing Arguments
Diagramming Logic Flow

We will start the Module 3 of the NOC course Symbolic Logic. Module 3 will introduce you how to recognize arguments, whether there are any guidelines for identifying a set of claims are arguments. Then we will also look into how to do the diagramming of the logic flow given in the argument. Each of these are important skills so we will try to get it clearer as we going to the through the lecture.

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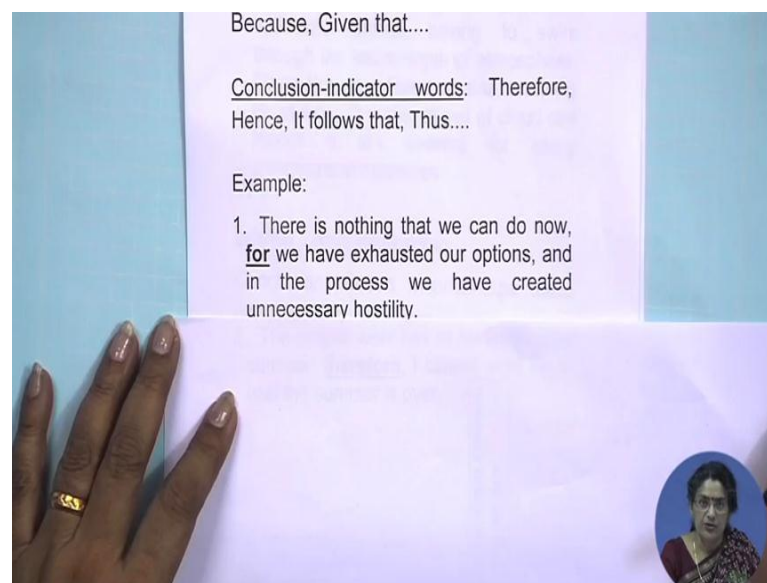


So, first thing is how does one recognize an argument? Are there any tips to be given for recognition of an argument and so on? Well, the first thing is that you know remember the definition of an argument. In our previous module I have already explained that arguments are special set of claims. If you do not know what claims are then set up claims you will not be able to identify. So, better that you clarify what is it that you know about the claims. Second, any set of claims cannot be an argument that also we have established. There has to be a certain internal structure and that structure would be the conclusion is going to be supported by the remaining claims which will act as premises.

So, that definition is going to be your basic guideline for understanding or for identifying an argument. But then there are also some tangible signs. Sometimes this tangible signs or cues may come from language itself. Remember to read the argument carefully. Sometimes the linguistic cues may help. Linguistic cues as in some words, some phrases that might be there in the passage or in the state of claims itself. What kind of language words, well there are known you know some indicated words. For example, there are some premise indicator words.

These words usually indicate what follows is a premise. When you say since this is the case therefore that has to be the case that a since is premise indicator since. Or for, you are giving a reason so you see for this as to be the case. Because that is giveaway clear indicator premise indicator word given that; you know there are many such words. Just give you an idea that read the passage carefully and try to identify locate premise indicator words so that you know what follows must be acting as these are claims which are acting as premises.

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Similarly, there are also conclusion indicator words. So, words which indicate that what it follow has to be a conclusion. For example, a clear indicator word is therefore, what follows the therefore has to be the conclusion. Hence, it follows that thus, so, etcetera. These are not exhaustive less, but this is just to open your eyes that it is important to read

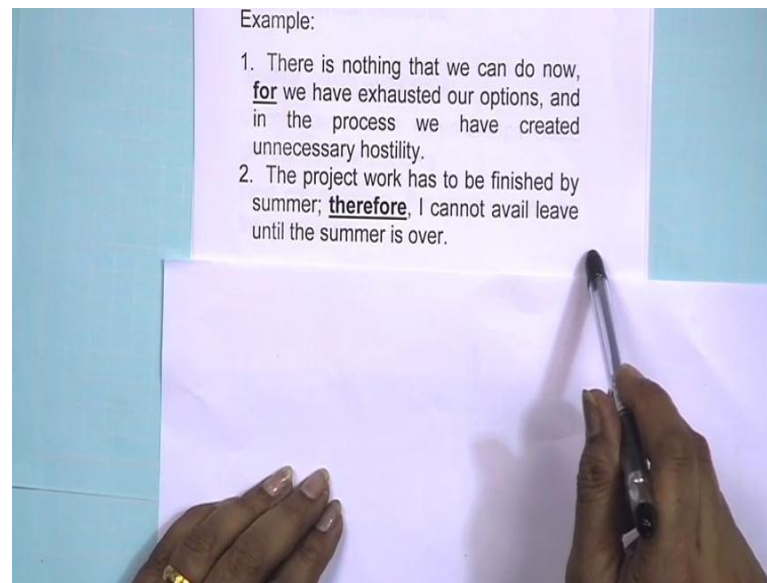
the arguments carefully or the passage carefully to see whether there is an argument in it or not.

So, I said that first of all the definition itself is going to matter, and then I say there also might be linguistic cues. And the language has to be carefully read and re read in order to identify this. When I say this, I also said this is a responsibility that sometimes none of these words made be there. And we will take some example of that also, but right now let see when we say that if there are linguistic clues they can help.

First example comes to you like this here is a small passage and what we are asking our self, does it contain an arguments, is this an argument or not. Let us read it first, there is nothing that we can do now, for we have exhausted our options, and in the process we have created unnecessary hostility. You are asking yourself is it a set of claims? First question and the answer is yes, there are number of claims; for example here, for example here, for example here. Then next the question is; is there a certain kind of relationships, is there a main claim and supporting claim certain relationship? You can also asking instead of that are there any indicator words here, we have found what which says 'for'. So, this is the case for that what does that tell you that what follows the 'for' is being offered as a supporting reason why this has to be the case.

So, here the 'for' is acting up as the premise indicator word and that should tell you that this is an argument. And then if you do the close reading you will find that indeed what follows the 'for' are two reasons what is being given as the reason why the person is saying there is nothing we can do now. That is a rather argument in despair, but still the structure necessary structure remains. So have you understood this? This is the premise indicator word that sometimes helps us to identify an argument. Let us take another example.

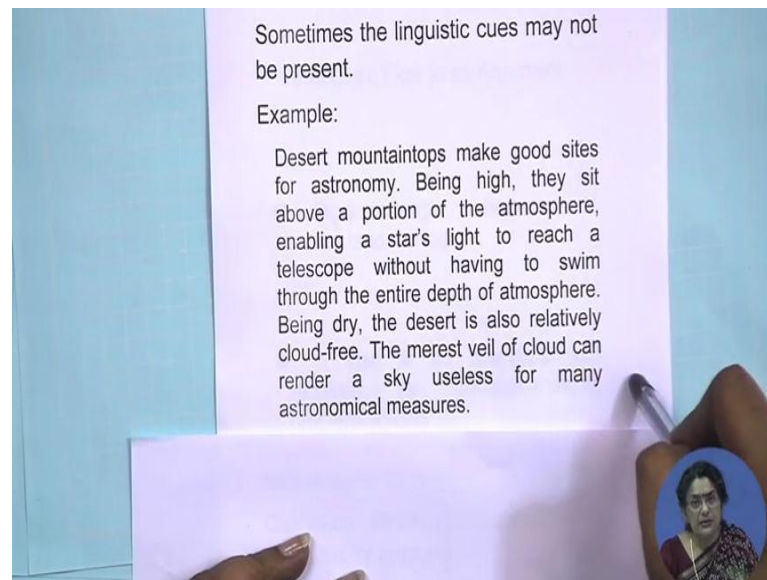
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This is what we are looking at; the project work has to be finished by summer, therefore I cannot avail leave until the summer is over. Is this an argument, first question; is it a set of claims with a certain specific relationship among the claims inside? Answer is yes on both counts. Moreover there is this conclusion indicator word which is therefore, so what follows the therefore is being proposed as a conclusion of this arguments. What is the conclusion? I cannot avail leave until the summer is over. Question is why, that answer is given here because the project work has to be finished by summer. So, in a way you can see what I was talking about that you can get help if you read the argument rather closely and look for this kind of linguistic cues that are often left inside the passages.

Having said that I will further add that I also said that there are these kinds of linguistic clues given in the passage by the original user of the argument, but sometime there is nothing but trust your logic sense and you will find that you can still identify the logical relationship that should be or suppose to be there in the set in order for it qualify as an argument. Let me show you an example.

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See we should not become too dependent on the language cues that are the whole point. So, let me show you this particular example, as we say that sometimes there may not be linguistic cues because people write in a different sort of ways, people speak in different sort of way and sometimes which is it is understood. So, here is sample of what I am saying. Here is a passage and the passage looks little long. So, I will read out with you.

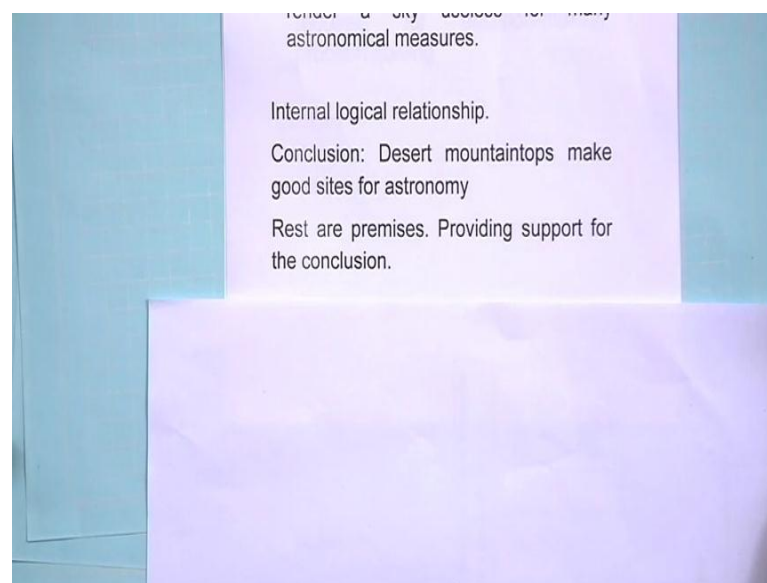
Desert mountaintops make good sites for astronomy. Being high they sit above a portion of the atmosphere, enabling a star's light to reach a telescope without having to swim through the entire depth of atmosphere. Being dry, the desert is also relatively cloud free. The merest veil of cloud can render a sky useless for many astronomical measures. Again the question is; is this an argument or is it just a passage or is it just a set of claims.

Let us read through first of all please note that there are no tell linguistic clues here. So, there is no premise indicator word, there is no conclusion indicated word, but without these can we survive, can we just find out whether this is an argument or not let us try to find that out. Let us read the argument once more and rather closely is it. A set of claim which has a main claim is it trying to push one point has it is principle or main point. The answer is if you read it again is yes. The whole passage is trying to establish the desert mountain tops make good sites for astronomy. If you think about where to put astronomy lab the answer is better sites are desert mountain tops.

And the remaining whatever you get to see here are reasons being given why this has to be the case. For example, here being high, so there is altitude thing remember it is a mountaintop, it is not a flat desert it is a top of the mountain where you are putting it. So, being high there is a certain advantage and that is what is being talked about in this part. Then there is further point we made that it also dry and that has certain advantages for astronomical observations. So, these are the two reasons why desert mountaintops make good sites for astronomy.

What desert shows us, that what we have here is a main claim or a conclusion? And the remaining claims are acting as evidentiary basis or supporting best for adducing or putting forth that main claim which is why they are premises. And that relationship alone is sufficient to establish why this has to be an argument total. We did not get any to see any linguistic clues here so we did not get to see for example any premise indicator word or a conclusion indicator word which is what I was talking about. But as I said learn to read carefully and learn to trust your innate logic sense and you will find relationship. Remember that relationship is the very basic condition that as to be filled out before you can call a set of claims an argument. There are both ways are acceptable if you are lucky you will have the linguistic clues if not even then you can survive by trusting and by reading closely.

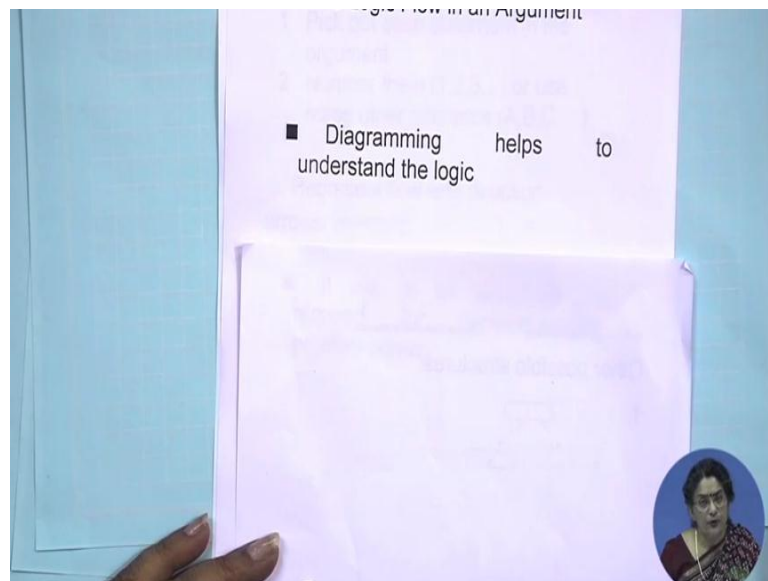
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So, here we can lay it out like this that we are not using the standard format, but still we can separate out the components of this argument. The conclusion is, desert mountaintop make good sites for astronomy the rest are premises providing the support for this main claim. This is how we can actually try to recognize an argument. It will take practice and I suggest that you try to read newspapers that you try read some small passages or look at different texts to see whether you can apply this skill there. Remember the definition of claim, remember the definition of an argument, and remember that there are this kind of linguistic clues also and that should help you to recognize an argument.

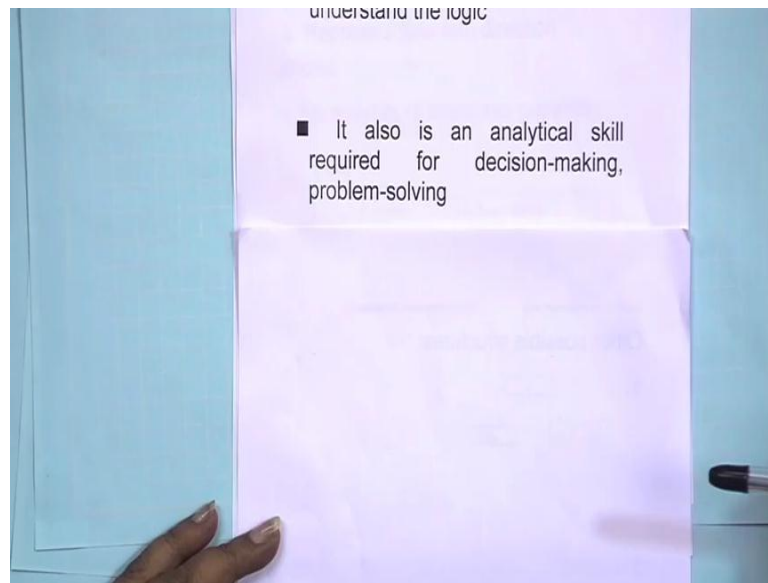
Next is for this module as I said that we will learn how to capture the logic flow in the argument. Remember that in the argument there is always a logical relationship among the components there is a certain kind of a structure. So, to visually represent that we can do certain kind of flow chart or some kind of diagram and that is what we are trying to learn here.

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But why is diagramming needed? Well, diagramming is needed first of all to understand the logic in the given in the argument. Remember we will finally talk about whether this is the correct reasoning or incorrect reasoning, but first we have understand the logic given in the argument. So, diagramming sort of helps to reveal the logic that has been put forth in the argument.

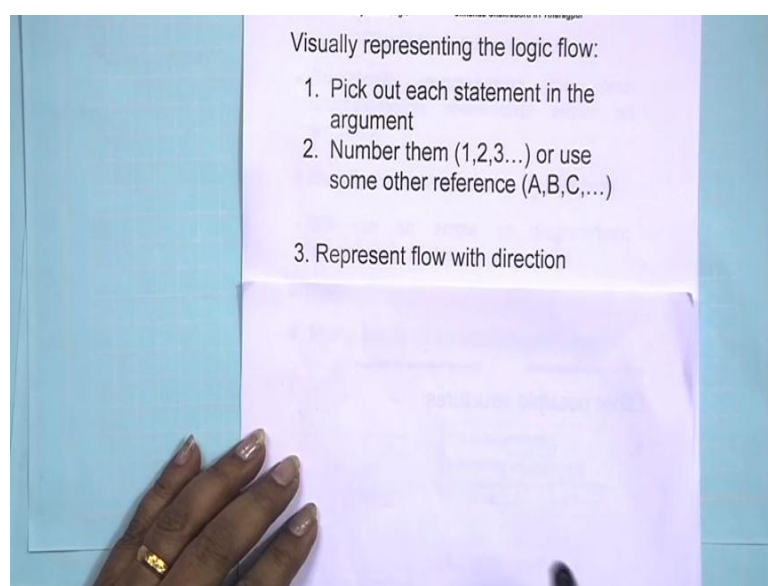
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Also it is a basic analytical tool. So, if you are trying to understand somebody else's argument in a way it helps if you can lay it out like this, and then certain look into how does the logic flow. And then you can make comments on whether this was sufficient or insufficient or this is credible or this is providing the right kind of supporting base or not.

So, I have made this point, there is the reason why will looking into the diagramming of the logic flow. It is a skill that can be practiced also.

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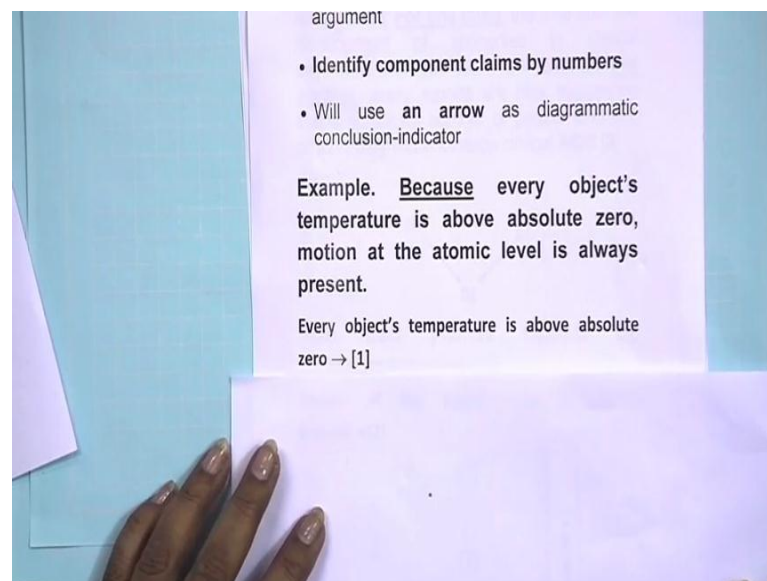


So, over all the logic flow diagram is a visual representation of the logic inside an argument. We are going inside the argument and trying to capture the logic flow. What do we have to do? Well, first of all now you know what claims are or what statements are so pick out each statement in the argument, each one regardless of whether it is premise or conclusion; in the order they come, in the sequence in which the statements are made pick out each statement in the argument.

And then you do what, you put a number against them or some sort of reference system. So, you might put 1 2 3 or you can also use other referencing A B C, but some way we are not going to use the entire whole statements but we will refer to them by this numbers or by this symbols. And then we will try to capture the flow with certain directions. Directions means, where does the support coming and what is it suppose to support.

Remember the whole argument is supposed about a main claim and then the remaining claims are trying to provide support. So, the logic flow is the direction flow from the premises to the conclusion. That we are going to capture with arrow. Arrow diagram will show in a second, but we are going to use arrow signs to show how the logic is flowing from premises to conclusion.

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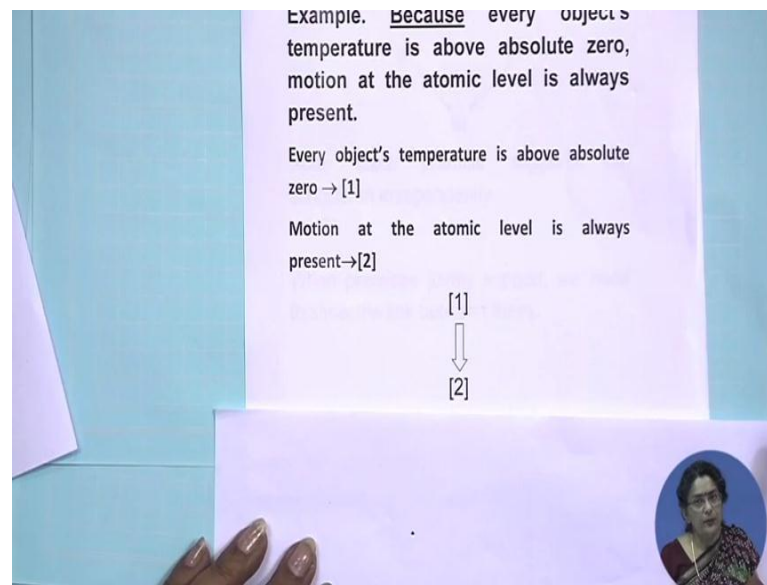


We will take an example and then may be that whole structuring will become clear. Say here is a small example; because every objects temperature is above absolute zero,

motion at the atomic level is always present. Is this an argument? The answer is yes, you have the premise indicator word also plus you can see that this is supposed to provide the support to this claim that is your conclusion.

So it is clear. Now what we have to do that we need to pick up the component claims from this passage. So, will number them like so. For example, this statement we are going to number it as one.

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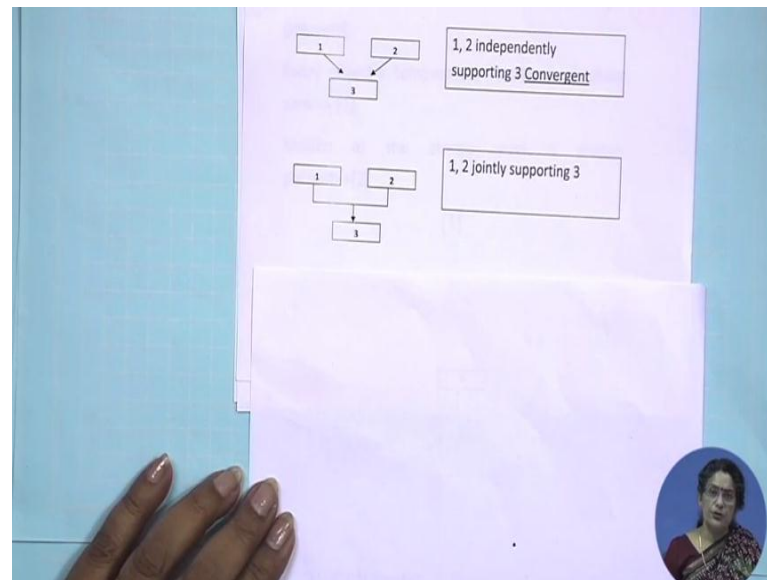


There are only two claims and then here is your second one. And we number it as two. We are not going to refer to the whole statement anymore we will simply use one and two in our diagram. And let me ask you then, we know how the logic is flowing, where which one is your premise which one is your conclusion you have already identified by now. So that is what we will try to capture, because of 1 2 is being put forth as the statement at that has to be true.

So here is your simple diagram, a simple linear arrow that shows this is the premise and from this the logic is flowing towards or the support is flowing towards this conclusion. This is what we call capturing the logic flow inside an argument. Then this is very very simple I understand this is one premise, one conclusive situation and that too not a very complicated one, but you can imagine that there can be many complexities involved in this.

Let me show you some of the structures that are available. See, it is not I told you that there are many kinds of relationships possible from the way the premise supports the conclusion can also be different.

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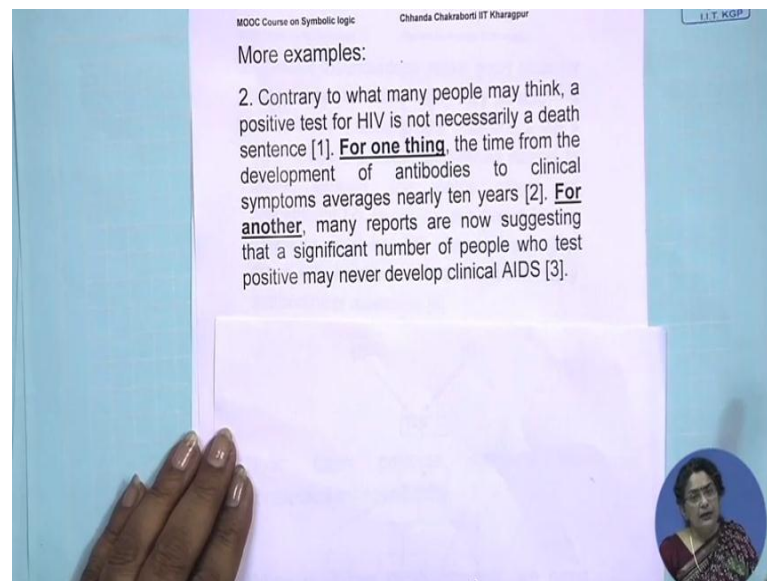


Let me show you through structures these relationships will become very clear; many kinds of structures possible because of the way in which premises support the conclusion. Here, is the small sample for example, see we have identified the components. Obviously, 3 is the conclusion in some argument. And these are the premises, but look in which way they are supporting 3; 1 is supporting 3, 2 is also supporting 3. Note that they are supporting 3 independently. That is from 1 also 3 follows from 2 also 3 follows, and they are converging they are independently supporting, but their support is converging 3 and look the way it is represented here.

So, when this kind of structure happens you know that there is no connection, not necessarily present between 1 and 2, none the less each of them is acting as premise towards 3. This is one kind of a structure. Now compare that will show you actual examples in a second. Compare that with this start the second one, here also we have three components but look at the way the premises are supporting the conclusion. So, 1 and 2 they are the premises and they are jointly supporting 3. How to indicate that? Well, that is why we have connected them like so.

This is a structure that shows that 1 alone is not supporting 3, 2 alone is not supporting 3, but they are jointly supporting 3. So, in a way the diagram captures more than what you can simply say by saying that 1 is a premise, 2 is a premise. The nature of that support will be captured also in your structure, in your flow diagram. So, let me show you the actual examples that we were talking about.

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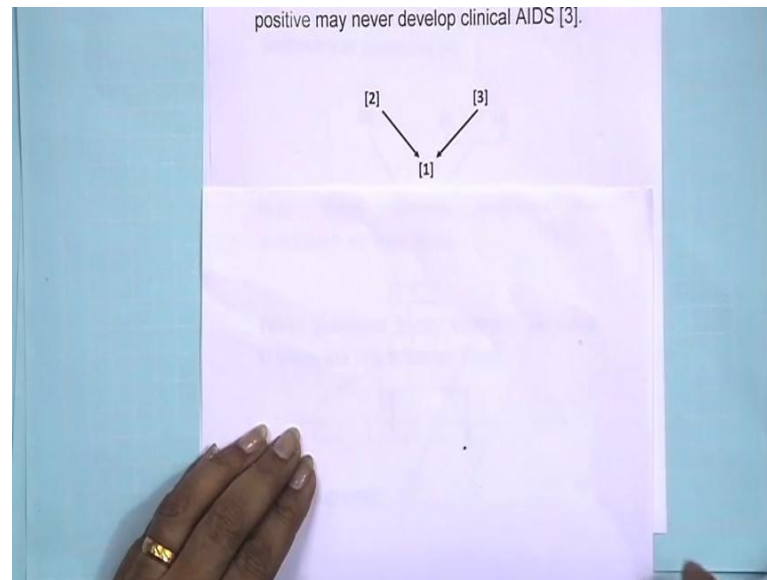


Here is one, this is the passage so let us take a look, 'contrary to what many people may think, a positive test for HIV is not necessarily a death; sentence that is a claim. For one thing the time from the development of antibodies to clinical symptoms averages nearly ten years; that is claim 2. For another many reports are now suggesting that a significant number of people who test positive may never develop clinical aids; that is claim number 3. So, there are three claims and what we have to done is to number them like so. The question is; what is the relationship among them?

By now you enough to say that the first sentence as to be the conclusion. What we are claiming is that, if you are HIV positive that does not necessarily mean that you are going to died; it is not necessarily a death sentence that is the conclusion. Why? And then we have these two premises coming up. For one thing that is a linguistic clue a premise indicator for another that is a linguistic clue also for your premise indicator. So far so good but how do I represent this in our flow diagram. The question is, how do you see the premise say this one the what we are calling number 2 how is it supporting the

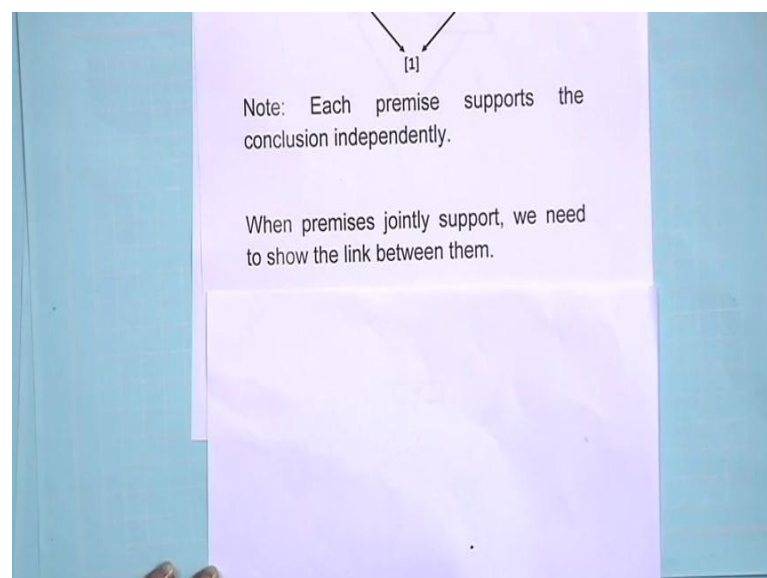
conclusion. And then the premise this is what we are calling 3, how is it supporting the conclusion; for one thing this for another thing this. That should tell you that they are supporting it independently; from this also this follows, from this also this follows.

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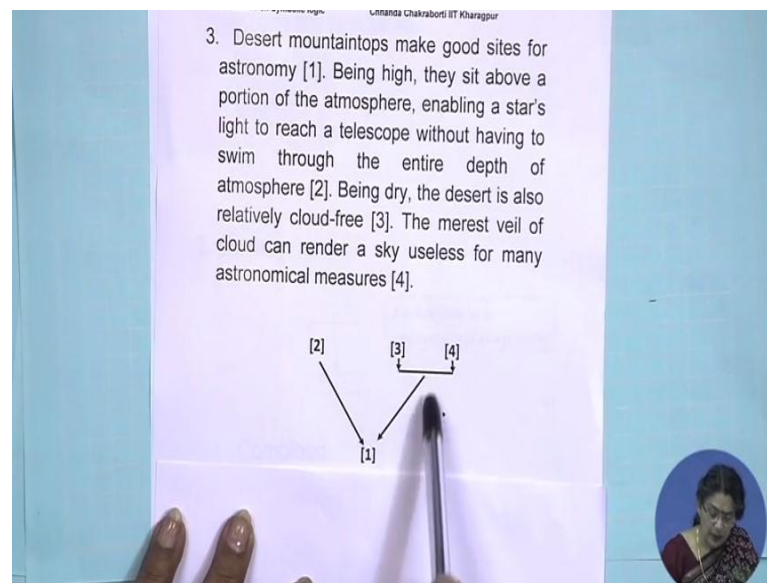
So, the structure that is going to capture the relationship is going to look like so. From 2 1, from 3 2; remember we said that if it is independently supporting then we do not have connect. This itself is a sufficient, this in itself sufficient, but somebody is using both of this reasons to support this in this argument, so that is our diagram for this argument.

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Let us take another example. So independent support and we do not join it together, but when we find that the premise is jointly supporting or that there is some internal connection between the premises then we need to show the link between the premises. And that is another example that we will try to look into.

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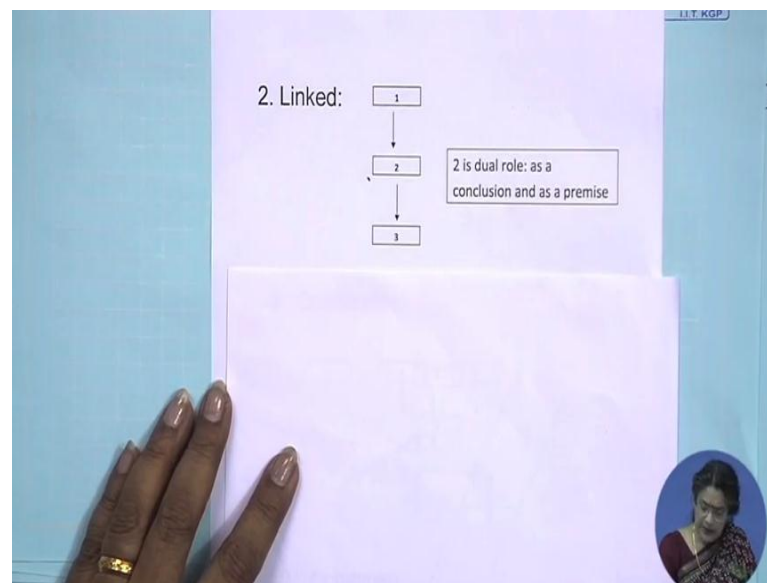


This is something that we have encountered earlier, this passage rather longish first we have seen this earlier. So, desert mountaintops make good sites for astronomy. Being high, they sit above a portion of the atmosphere, enabling a star's light to reach a telescope without having to swim through the entire depth of atmosphere. This whole thing is your claim number 2. Being dry, the desert is also relatively cloud free; 3. The merest veil of cloud can render a sky useless for many astronomical measures that is your 4. So, there are 4 total components in this passage. And we have all ready in earlier module we have talked about this has to be the conclusion. The remaining are all premises giving support to this.

So, the question is now how are they supporting the conclusion, and the way to represent this would be something like this. That one that this being high that in itself is a reason why desert mountaintops make good sites for astronomy. So here is this link. Then there is this 3 and 4, 3 say being the desert is also relatively cloud free. And then comes somewhat sort of an explanation of this dryness, why this cloud freeness is required is because the merest veil of cloud can render a sky useless for astronomical purposes.

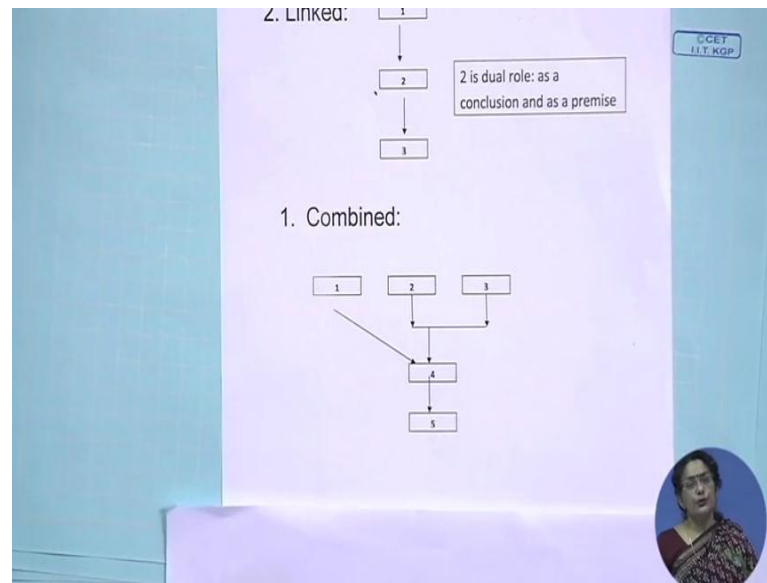
So, in a way they become a joint sort of linked premises and then they support one also. What did we just notice? That here is the reason why one as to be the case, here is another reason why it has to be the case, these two are independent reasons, but within this independent reason there is a linked sort of a support among the claims of this group. So, this little no answers within the argument you can capture by this kind of logic diagram.

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Let me conclude this module by showing you other possible structures. You know sometimes that you can imagine the complexities that might be there in any argument. Here is an interesting one for example, sometimes you might feel that there is a change that certain of an argument within the same argument that first there is this point which leads to a sub conclusion, and then it leads to the main conclusion. So, 3 is your main conclusion and 2 has dual role to play. So, it is both of premise as well as the conclusion. And in a way what you have a linked argument going. So, that is one kind of structure.

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This is an arbitrary case of course, but you can see the complexity that you can capture like this. Here 5 is the main conclusion, but it is coming through the support of 4; 4 is a important premise. And for 4 there are many supports; 1 is supporting 4 independently, 2 and 3 are linked and that is how they are supporting 4, but all together all of them are supporting 5.

So, this is just to show you that there can be internal dynamics within the argument. Is sometimes very interesting and what the logic flow diagram does is to capture that internal relationship. This is where I will end this Module 3.

Thank you.