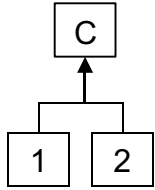
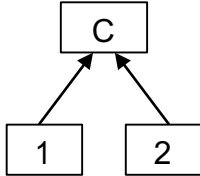


Critical Thinking
Tutorial 6: Assessing and evaluating complex arguments
Original created by: Jennifer M. Windt

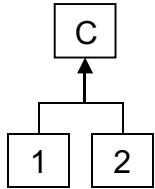
Standardise and draw argument map diagrams for the following arguments.

Exercise 1 (no sub-arguments)

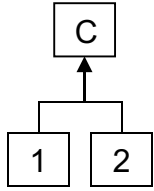
1. Whoever the guilty person is, they must be left-handed.	
2. Miss Green is not left-handed.	
Therefore:	
C. Miss Green is not guilty.	

1. Identity cards are of doubtful effectiveness in tackling identity fraud, crime and terrorism	
2. The cost of a national identity card system would be staggering and wasteful.	
Therefore:	
C. The government's proposal to introduce a national identity card should be rejected.	

(1) Either war will continue or peace will be negotiated. But peace will not be negotiated, so war will continue.

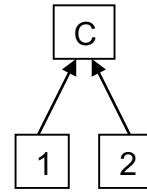
1. Either war will continue or peace will be negotiated.	
2. Peace will not be negotiated.	
Therefore	
C. War will continue.	
Disjunctive syllogism	

(2) If we finish work early, we will go to the beach or see a movie. If we go to the beach or see a movie, we will be home late. Therefore, if we finish work early, we will be home late.

1. If we finish work early, we will go to the beach or see a movie.	
2. If we go to the beach or see a movie, we will be home late.	
Therefore	
C. If we finish work early, we will be home late.	
Hypothetical syllogism	

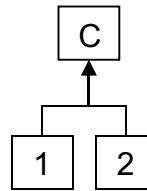
(3) Too much exposure to the sun is very unhealthy. It has been shown that sunlight can cause premature aging of the skin. And furthermore, ultraviolet rays in the sun might also trigger skin cancer.

1. Sunlight can cause premature aging of the skin.
 2. Ultraviolet rays in the sun might trigger skin cancer.
- Therefore:**
- C.** Too much exposure to the sun is very unhealthy.



(4) People who are old enough to fight for their country are old enough to vote for the people who make decisions about war and peace. Therefore, this government should allow 17 year olds to vote, since the government clearly regards 17 year olds as old enough to fight.

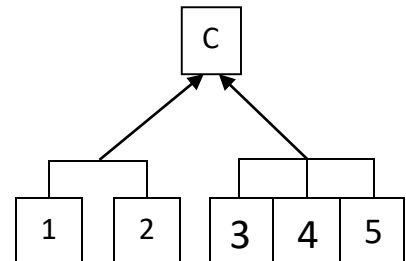
1. People who are old enough to fight for their country are old enough to vote for the people who make decisions about war and peace.
 2. The government clearly regards 17 year olds as old enough to fight.
- Therefore**
- C.** This government should allow 17 year olds to vote.



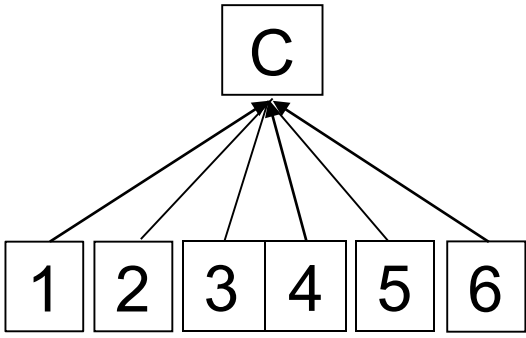
(5) There are several reasons why interest rates should now be reduced. Firstly, economic growth has been slowing and lower interest rates lead to higher growth rates. Secondly, many companies are in great difficulties and lower interest rates will allow them to borrow money more easily which will help them to survive.

This argument has a mixture of linked and independent premises.

1. Economic growth has been slowing.
 2. Lower interest rates lead to higher growth rates.
 3. Many companies are in great difficulties.
 4. Lower interest rates will allow companies having difficulties to borrow money more easily.
 5. Borrowing money will help companies having difficulties to survive.
- Therefore:**
- C.** Interest rates should now be reduced.

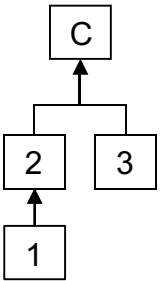


(6) There is a growing body of evidence to suggest that global temperatures are increasing. Firstly, thermometer-based measurements of sea and air temperatures have recorded an average increase of 0.65 degrees centigrade over the last 130 years. Secondly, there is evidence that global sea-levels have risen by about 4 – 14 cm over the last 100 years. Thirdly, satellite images show that both Arctic and Antarctic sea ice is melting and that the Greenland ice-sheet is receding. *There is also evidence of changes in weather patterns* – in particular, an increased incidence of storms and floods. Finally, there is evidence from the behavior of birds and insects: British birds nest 8-16 days earlier than 30 years ago and insect species – including bees and termites – that need warm weather to survive are moving northward. (*Global Warming: A very short introduction*. Mark Maslin, 2004)

<ol style="list-style-type: none"> 1. Thermometer-based measurements of sea and air temperatures have recorded an average increase of 0.65 degrees centigrade over the last 130 years. 2. Global sea-levels have risen by about 4 – 14 cm over the last 100 years. 3. Satellite images show that both Arctic and Antarctic sea ice is melting and that the Greenland ice-sheet is receding. 4. There has been an increased incidence of storms and floods. 5. British birds nest 8-16 days earlier than 30 years ago. 6. Insect species – including bees and termites – that need warm weather to survive are moving northward. <p>Therefore: C. Global temperatures are increasing.</p>	 <pre> graph BT 1[1] --> C[C] 2[2] --> C 3[3] --> C 4[4] --> C 5[5] --> C 6[6] --> C </pre>
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Exercise 2 (one sub-argument)

(1) Censorship is acceptable only if it can be easily enforced. But censorship cannot be easily enforced because it is difficult to decide who will do the censoring. So censorship is not acceptable.

<ol style="list-style-type: none"> 1. It is difficult to decide who will do the censoring <p>Therefore:</p> <ol style="list-style-type: none"> 2. Censorship cannot be easily enforced 3. Censorship is acceptable only if it can be easily enforced. <p>Therefore: C. Censorship is not acceptable.</p>	 <pre> graph BT 1[1] --> 2[2] 2 --> C[C] 3[3] --> C </pre>
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(2) Mr Brown has a solid alibi and so he cannot have committed the crime. But it was either him or Mr. Orange who committed the crime. Therefore, it was Mr. Orange who committed the crime.

<p>1 Mr Brown has a solid alibi.</p> <p>Therefore,</p> <p>2. Mr Brown did not commit the crime.</p> <p>3. It was either Mr Brown or Mr Orange who committed the crime.</p> <p>Therefore,</p> <p>C. It was Mr. Orange who committed the crime.</p>	<pre> graph BT 1[1] --> 2[2] 2 --> C[C] 3[3] --> C </pre>
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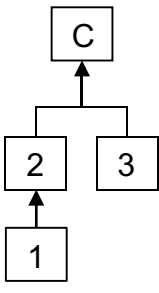
(3) Increasing the size of the police force is only a temporary solution to the problem of rising crime rates since it does not get at the root causes of crime. Therefore, the government should not respond to rising crime rates by increasing the size of the police force.

<p>1. Increasing the size of the police force does not get at the root causes of crime.</p> <p>Therefore,</p> <p>2. Increasing the size of the police force is only a temporary solution to the problem of rising crime rates.</p> <p>Therefore,</p> <p>C. The government should not respond to rising crime rates by increasing the size of the police force.</p>	<pre> graph BT 1[1] --> 2[2] 2 --> C[C] </pre>
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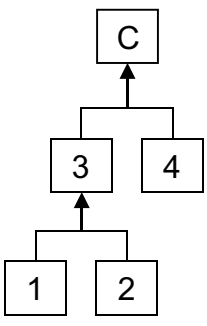
(4) There are two reasons why we should have a smoking ban in pubs and clubs. Firstly, it will benefit the industry itself, since many more people are likely to go to pubs and clubs if they are smoke free. Secondly, it is wrong to subject people who work in pubs and clubs to the dangers of passive smoking.

<p>1. Many more people are likely to go to pubs and clubs if they are smoke free</p> <p>Therefore:</p> <p>2. A smoking ban in pubs and clubs will benefit the industry itself.</p> <p>3. It is wrong to subject people who work in pubs and clubs to the dangers of passive smoking.</p> <p>Therefore:</p> <p>C. We should have a smoking ban in pubs and clubs.</p>	<pre> graph BT 1[1] --> 2[2] 2 --> C[C] 3[3] --> C </pre>
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(5) Radioactive elements disintegrate and eventually turn into lead. Hence, if matter has always existed there should be no radioactive elements left. But there is still plenty of uranium and other radioactive elements around. This is scientific proof that matter has not always existed.

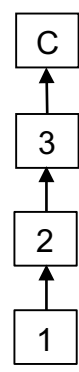
<p>1. Radioactive elements disintegrate and eventually turn into lead.</p> <p>Therefore,</p> <p>2. If matter has always existed there should be no radioactive elements left.</p> <p>3. There is still plenty of uranium and other radioactive elements around.</p> <p>Therefore,</p> <p>C. Matter has not always existed.</p>	 <pre> graph BT 1[1] --> 2[2] 2 --> C[C] 2 --- 3[3] </pre>
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(6) If many people lose their homes, the real estate market will deteriorate. And if that happens, the construction industry will slow down. So, if many people lose their homes, the construction industry will slow down. Recent figures show that many people are losing their homes. Therefore, the construction industry will slow down.

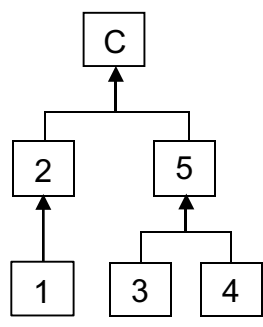
<p>1. If many people lose their homes, the real estate market will deteriorate.</p> <p>2. If the real estate market deteriorates, the construction industry will slow down.</p> <p>Therefore:</p> <p>3. If many people lose their homes, the construction industry will slow down.</p> <p>4. Recent figures show that many people are losing their homes.</p> <p>Therefore:</p> <p>C. The construction industry will slow down.</p>	 <pre> graph BT 1[1] --> 3[3] 2[2] --> 3 3 --> C[C] 3 --- 4[4] </pre>
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Exercise 3 (Several sub-arguments)

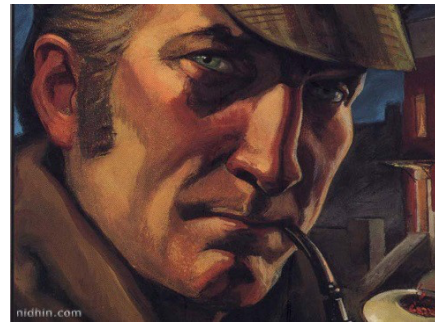
(1) The speed limit on major highways should not be reduced. Professional drivers spend much more time driving, on average, than do other people and hence they are more competent drivers than are other, less experienced drivers. So reducing the speed limit would have the undesirable effect of forcing some people who are now both law abiding and competent drivers to break the law.

<p>1. Professional drivers spend much more time driving, on average, than do other people.</p> <p>Therefore:</p> <p>2. Professional drivers are more competent drivers than are other, less experienced drivers.</p> <p>Therefore:</p> <p>3. Reducing the speed limit would have the undesirable effect of forcing some people who are now both law abiding and competent drivers to break the law.</p> <p>Therefore:</p> <p>C. The speed limit on major highways should not be reduced.</p>	 <pre>graph BT; 1[1] --> 2[2]; 2 --> 3[3]; 3 --> C[C]</pre>
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(2) ... Sociologically, however, it may be argued that crime is both normal and necessary. Crime is 'normal' in the sense that if we look at all societies, past and present, we always find criminal or 'deviant' behaviour which meets with some form of punishment or sanction. Crime is 'necessary' in the sense that any behaviour we define as punishable also serves to define the boundaries of what is acceptable and unacceptable behaviour, and that such boundary definition is fundamental to social order.

<p>1. If we look at all societies, past and present, we always find criminal or 'deviant' behaviour which meets with some form of punishment or sanction.</p> <p>Therefore,</p> <p>2. Crime is normal.</p> <p>3. Any behaviour we define as punishable also serves to define the boundaries of what is acceptable and unacceptable behaviour</p> <p>4. Defining the boundaries of what is acceptable and unacceptable behaviour is fundamental to social order.</p> <p>Therefore,</p> <p>5. Crime is necessary.</p> <p>Therefore:</p> <p>C. Crime is both normal and necessary.</p>	 <pre>graph BT; 1[1] --> 2[2]; 3[3] --> 5[5]; 4[4] --> 5; 2 --> C[C]; 5 --> C</pre>
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(3) The kidnapper must have gone either east or west along the road or north or south across country. But we know he did not go east along the road because a policeman was on duty in that direction all night and he says he saw no one. And we know he did not go west because the people at the inn to the west were awake all night, waiting for a doctor to arrive and they also saw no one. So the kidnapper must have gone north or south across country. But he cannot have gone south since he took the bicycle and the country to the south is impossible to cross with a bicycle. Therefore, the kidnapper must have gone north. (Adapted from the Sherlock Holmes story: *The Priory School*)



<ol style="list-style-type: none"> 1. The kidnapper must have gone either east or west along the road or north or south across country. 2. A policeman was on duty to the east all night and he says he saw no one. Therefore (from 2) 3. The kidnapper did not go east along the road. 4. The people at the inn to the west were awake all night, waiting for a doctor to arrive and they also saw no one. Therefore (from 4) 5. The kidnapper did not go west. Therefore (From 1, 3 and 5): 6. The kidnapper must have gone north or south across country. 7. The kidnapper took the bicycle and the country to the south is impossible to cross with a bicycle. Therefore (from 7) 8. The kidnapper did not go south. Therefore: (From 6 and 8) C. The kidnapper must have gone north. 	<pre> graph BT 2 --> 3 4 --> 3 3 --- 1 3 --- 5 7 --> 8 6 --> C 8 --> C </pre>
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(4) The proposed dam on the Merv River should not be built. Although the dam would provide irrigation for the dry land in the upstream areas, it would reduce agricultural productivity in the fertile land downstream, since the availability and quality of water downstream from the dam would be reduced. The productivity loss in the downstream area would be greater than the productivity gain upstream, so the dam would yield no overall gain in agricultural productivity in the region as a whole.

<ol style="list-style-type: none"> 1. The availability and quality of water downstream from the proposed dam would be reduced. Therefore: 2. The dam would reduce agricultural productivity in the fertile land downstream. 3. The dam would provide irrigation for the dry land in the upstream areas. 4. The productivity loss in the downstream area would be greater than the productivity gain upstream. Therefore: 5. The dam would yield no overall gain in agricultural productivity in the region as a whole. Therefore: C. The proposed dam on the Merv River should not be built. 	<pre> graph BT 1 --> 2 2 --- 3 2 --- 4 5 --> C </pre>
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The philosophical argument of the week

Suppose someone, Black, let us say wants Jones to perform a certain action. Black is prepared to go to considerable lengths to get his way, but he prefers to avoid showing his hand unnecessarily. So he waits until Jones is about to make up his mind what to do, and he does nothing unless it is clear to him (Black is an excellent judge of such things) that Jones is going to decide to do something other than what he wants him to do. If it does become clear that Jones is going to decide to do something else, Black takes effective steps to ensure that Jones decides to do, and that he does do, what he wants him to do. Whatever Jones's initial preferences and inclinations, then, Black will have his way....

Now suppose that Black never has to show his hand because Jones, for reasons of his own, decides to perform and does perform the very action Black wants him to perform. In that case, it seems clear, Jones will bear precisely the same moral responsibility for what he does as he would have borne if Black had not been ready to take steps to ensure that he do it. (Harry Frankfurt (1969), Alternate Possibilities and Moral Responsibility, *Journal of Philosophy* 45, 829-839.

What is the argument supposed to show? What is its main conclusion?

Jones will bear precisely the same moral responsibility for what he does as he would have borne if Black had not been ready to take steps to ensure that he do it.

How does relate to the Principle of Alternative Possibilities (PAP): Agents are morally responsible for what they have done only if they could have done otherwise.

Using PAP as your first premise, can you reconstruct Frankfurt's argument?

1. PAP: Agents are morally responsible for what they have done only if they could have done otherwise.
2. If PAP is true, then Frankfurt-style cases will absolve their subjects from moral responsibility.
3. Frankfurt-style cases do not absolve their subjects from moral responsibility.

Therefore,

C. PAP is false (modus tollens, 2, 3)

Discussion question of the week:

Now, think about Frankfurt's strategy. How does the example of Black and Jones fit in with the different kinds of arguments that we have discussed so far? Is this an effective kind of argument, and why/why not?