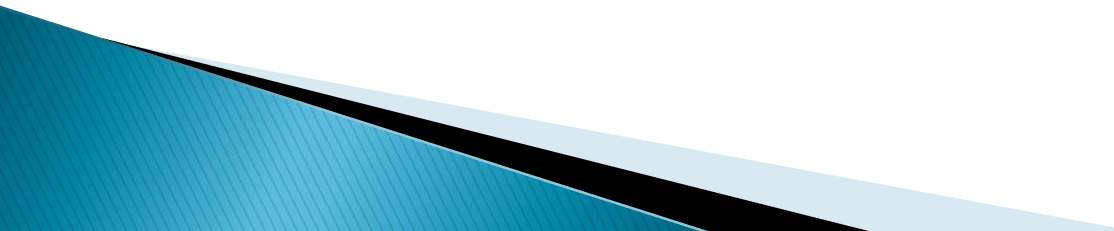


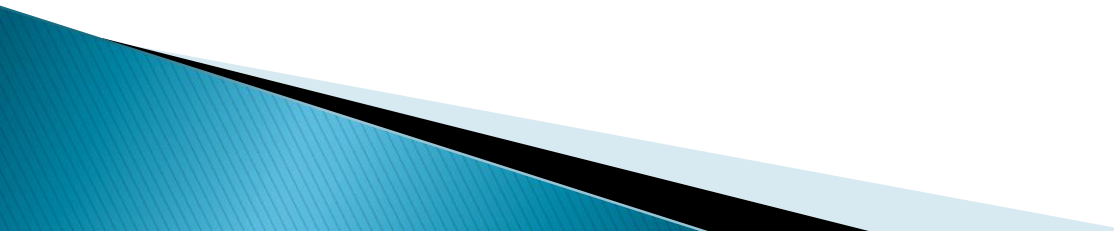
Argument Analysis



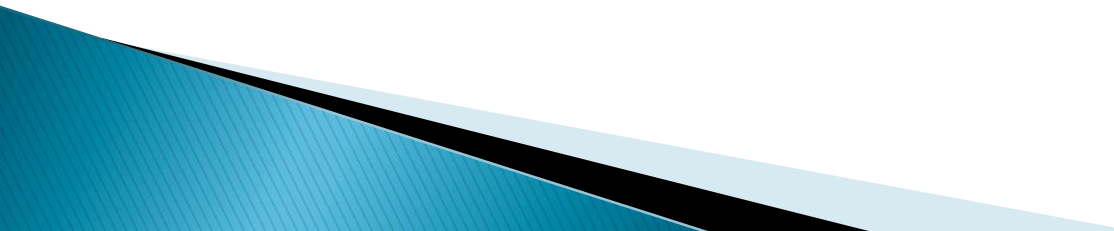
Validity

- ▶ Recall, validity is the property that arguments have if they are truth-preserving.
 - ▶ That is, an argument is valid if it will never lead you from truths to falsities.
 - ▶ Remember not to mix up truth-preserving with true.
 - ▶ Logic can tell us with absolute certainty if an argument is valid.
- 

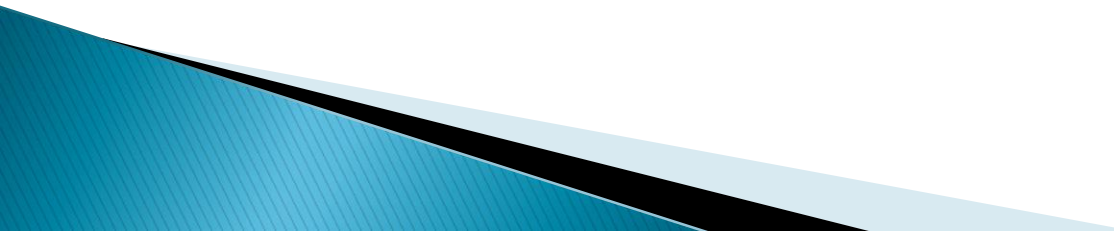
Soundness

- ▶ If an argument is valid, AND its premises are true, then the argument is sound
 - ▶ It is difficult to establish the soundness of most arguments because it is difficult to know for sure what things are true.
 - ▶ For that reason, we will not examine soundness to any great extent.
- 

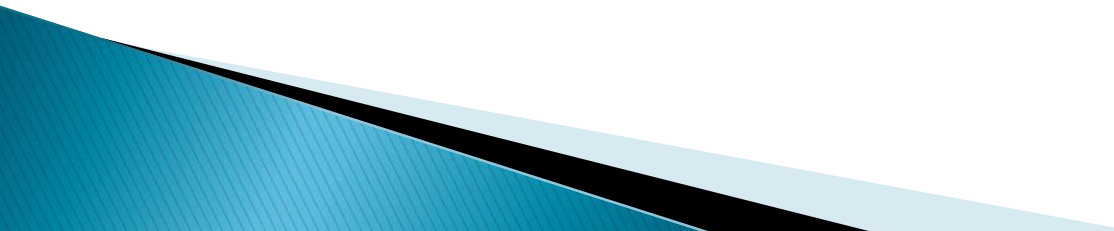
Counterexamples

- ▶ If any argument form can EVER give a result in which the premises are true while the conclusion is false, then that argument form is invalid.
 - ▶ When someone supplies such an example, it is called a counterexample.
 - ▶ A counterexample demonstrates that an argument form is invalid.
- 

Consider:

- ▶ All beagles are mammals
 - ▶ All dogs are mammals
-
- ▶ All beagles are dogs
-
- ▶ Note that the premises are both true and so is the conclusion.
- 

Consider:

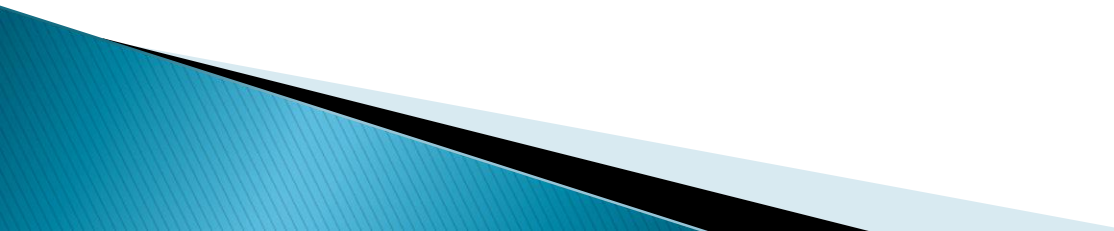
- ▶ All beagles are mammals
 - ▶ All dogs are mammals
-
- ▶ All beagles are dogs
-
- ▶ Note that the premises are both true and so is the conclusion.
 - ▶ That does NOT necessarily mean that the argument is truth-preserving (valid)
- 

Consider:

- ▶ All beagles are mammals
 - ▶ All dogs are mammals

 - ▶ All beagles are dogs

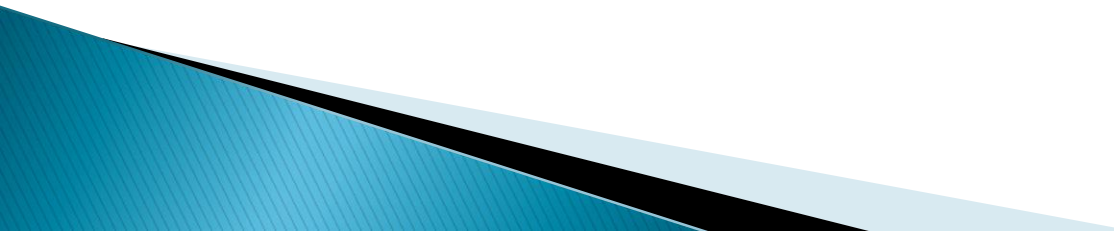
 - ▶ The form of this argument is:
 - ▶ All B are M
 - ▶ All D are M

 - ▶ All B are D
- 

Consider:

- ▶ All B are M
- ▶ All D are M
- ▶ All B are D

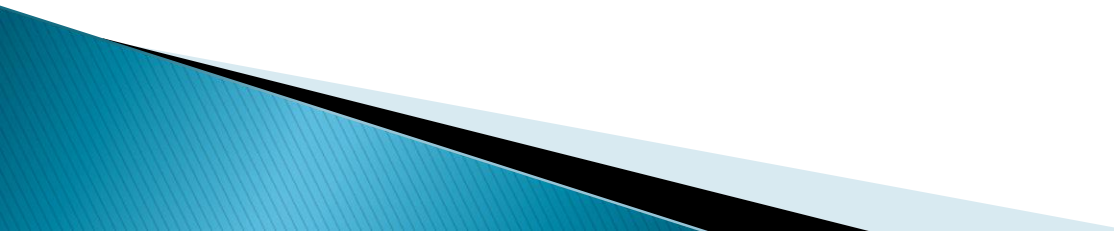
Here is another argument with the same form:

- ▶ All witches are things that float.
 - ▶ All things made of wood are things that float.
 - ▶ All witches are things made of wood.
- 

Consider:

- ▶ All B are M
- ▶ All D are M
- ▶ All B are D

Also:

- ▶ All men are humans.
 - ▶ All women are humans.
 - ▶ All men are women.
- 

Counterexample

- ▶ Each of the previous arguments show that the argument form in question is not truth preserving.
 - ▶ They are instances of the argument having true premises while the conclusion is false.
 - ▶ If this is ever possible, the argument form is invalid, and no matter what content goes into that argument form, it is still invalid.
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