

# Introduction to Logical Reasoning

## *Argument Diagrams*

David Emmanuel Gray

---

*Northwestern University in Qatar*  
*Carnegie Mellon University in Qatar*

# Diagramming an Argument

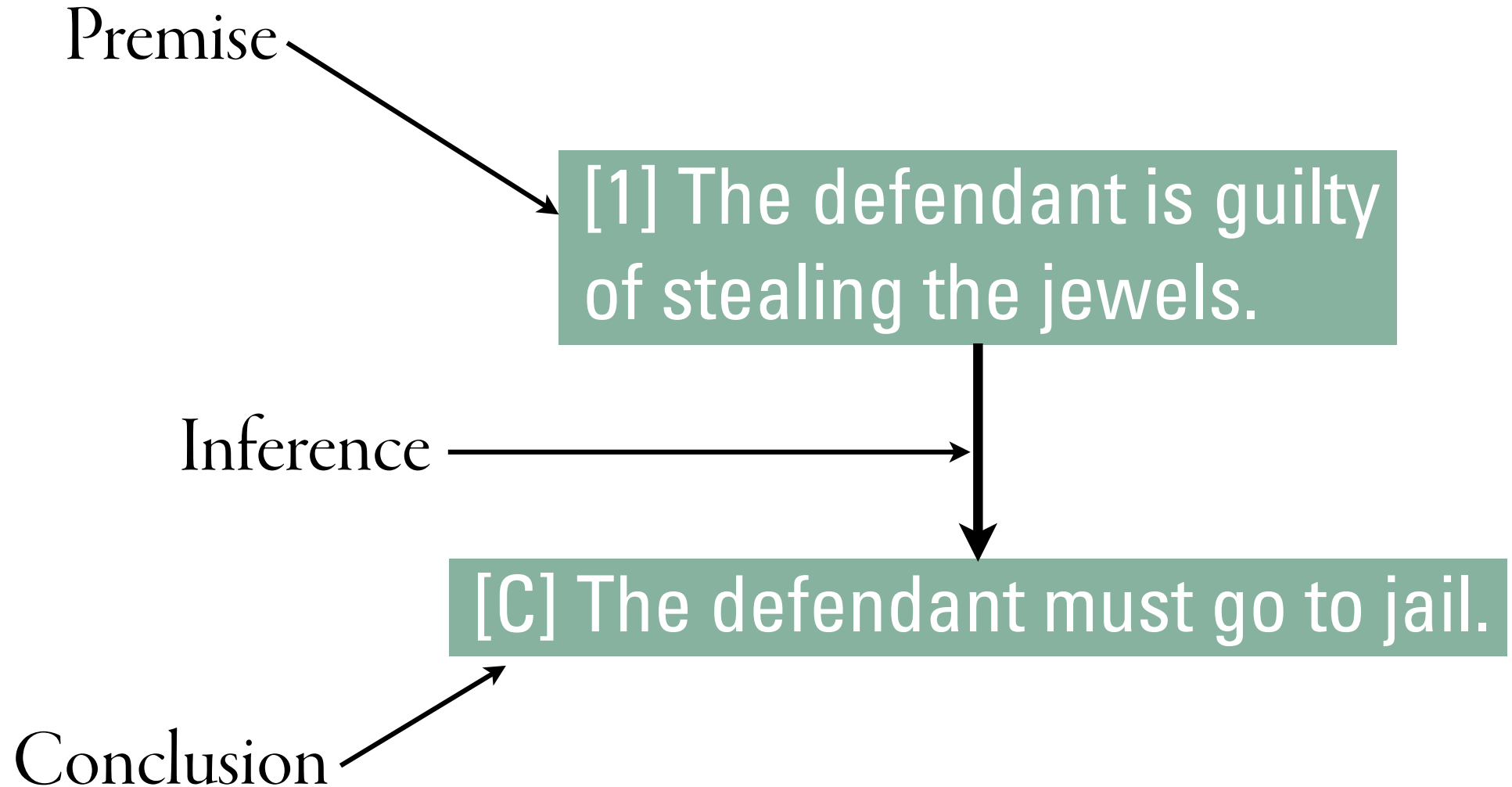
C The defendant must go to jail because <sup>PI</sup> he is guilty of stealing the jewels.

[1] The defendant is guilty of stealing the jewels.



[C] The defendant must go to jail.

# Diagramming an Argument



# Independent Premises

1 The defendant signed a confession, <sup>CI</sup>thus <sup>C</sup>he is guilty <sup>C</sup>  
of stealing the jewels. Furthermore, we know <sup>2</sup>he was  
present at the scene of the crime.

[1] The defendant  
signed a confession.

[2] The defendant was present  
at the scene of the crime.

[C] The defendant is guilty  
of stealing the jewels.

# Independent Premises

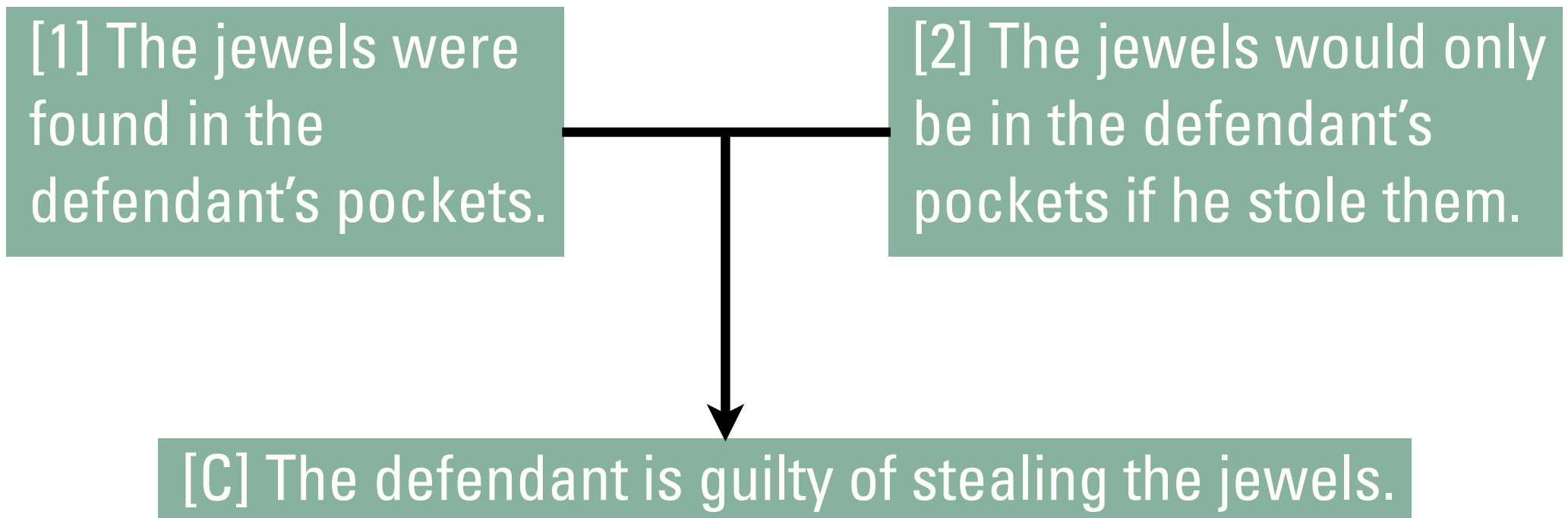
---

An **independent premise** is one that does not depend on other premises to provide support for a conclusion. So denying or removing an independent premise does *not* undermine the support that the conclusion receives from any other premises.

# Dependent Premises

<sup>1</sup>The jewels were found in the defendant's pockets,  
and <sup>2</sup>they would only be there if he stole them.

Therefore, he is guilty of stealing the jewels.  
CI C



# Dependent Premises

---

A **dependent premise** is one that does depend on at least one other premise to provide joint support for a conclusion. So denying or removing an dependent premise *does* undermine the support that its linked premises give to the conclusion.

# Chain Arguments

C  
PI The defendant was present at the scene of the crime  
PI because his fingerprints were on the safe. We know  
this because the forensic report says so.  
PI 2

[2] The forensic report says the defendant's fingerprints were on the safe.



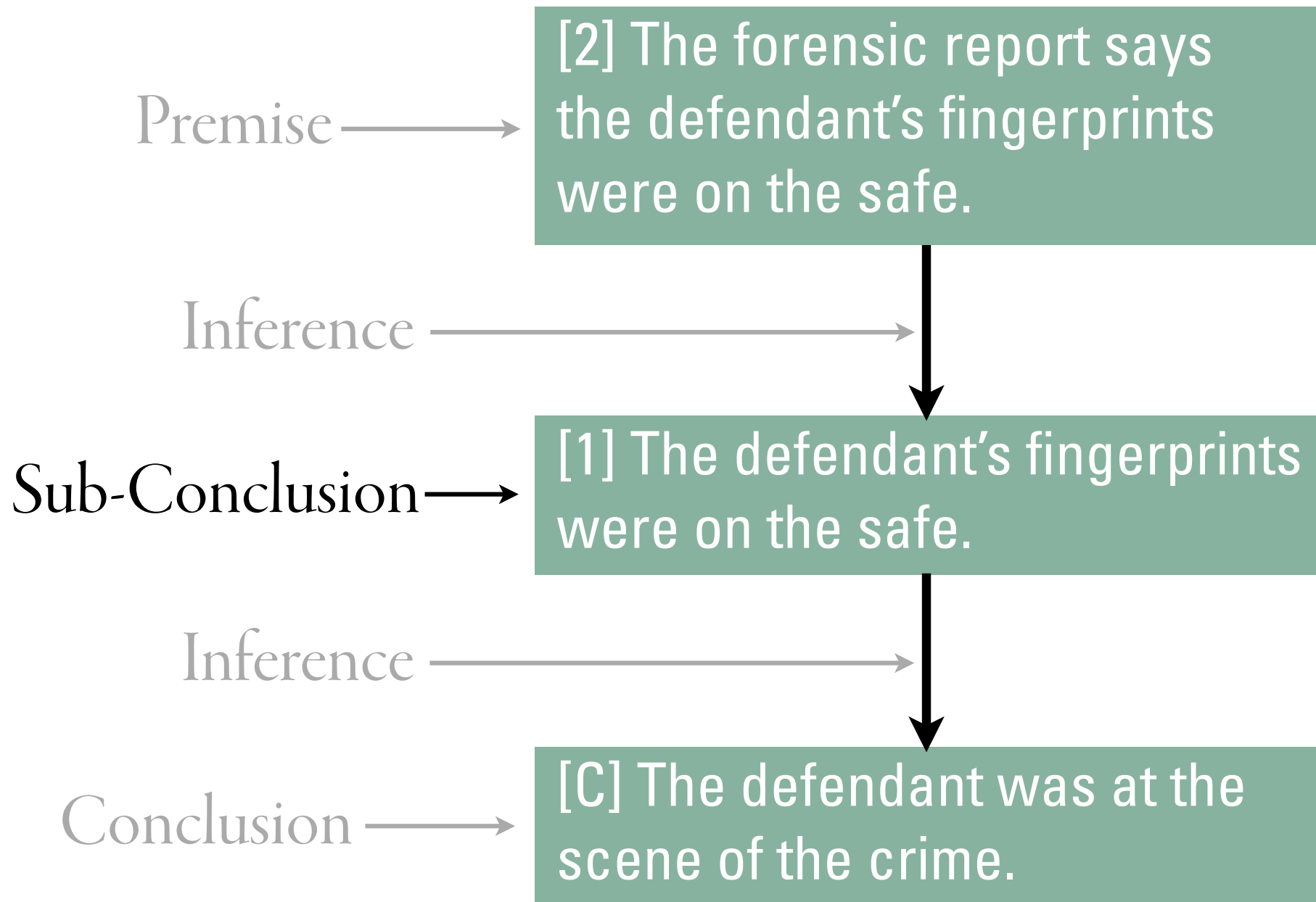
[1] The defendant's fingerprints were on the safe.



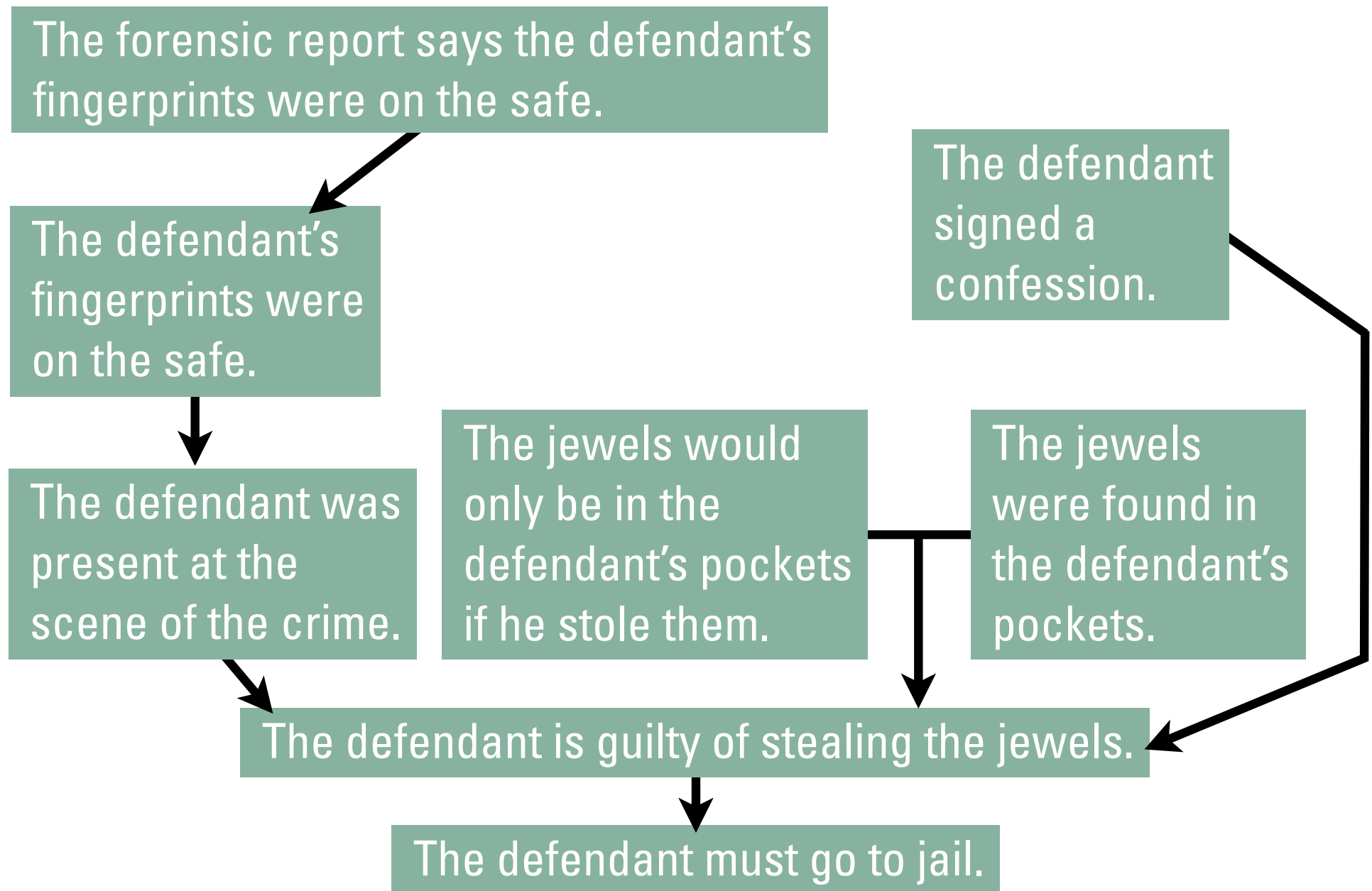
[C] The defendant was at the scene of the crime.



# Chain Arguments



# The Full Argument Diagram



# Analytic Summary

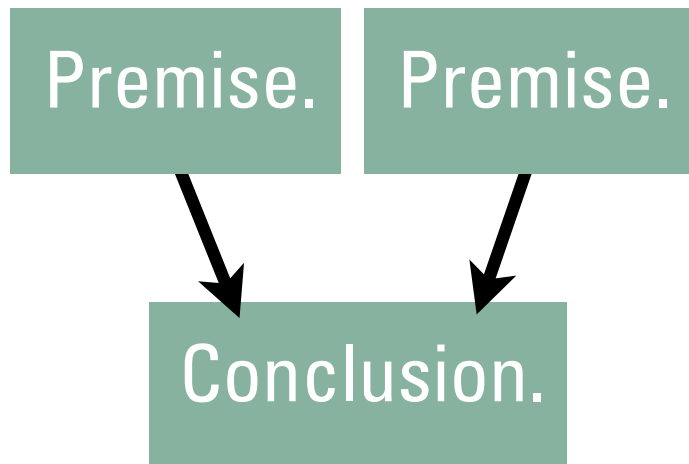
---

The defendant must go to jail because he is guilty of stealing the jewels. There are three sets of reasons for this. First of all, the defendant signed a confession. Second, the jewels were found in the defendant's pockets and they would only be there if he stole them. Third and finally, the forensic report says the defendant's fingerprints were on the safe, and so his fingerprints must be those on the safe, thus implying that he was at the scene of the crime.

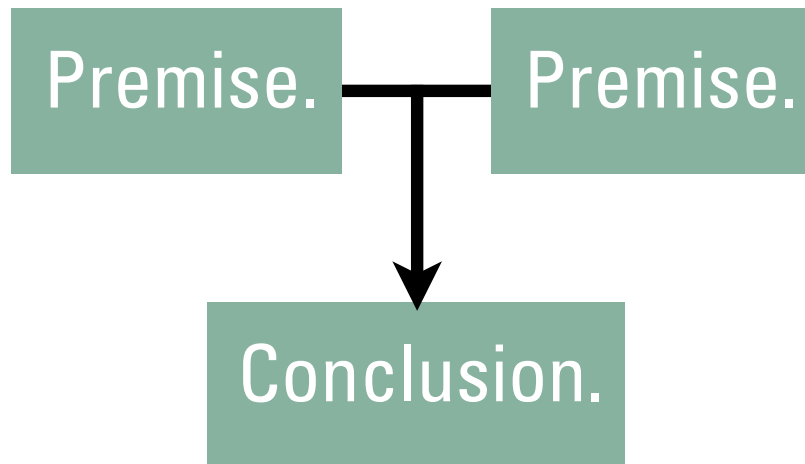
# 🐛 Different Argument Patterns

Learn to recognize the difference between these:

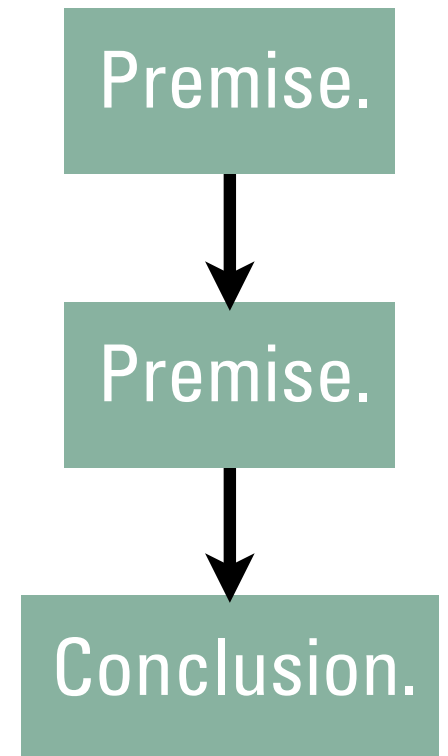
Independent  
Premises



Dependent  
Premises



Argument  
Chain



# Next Class...

---

We will have a workshop on analyzing disputes and diagramming arguments.