

IMP 2
All About Alice
POW 15
“A Logical Collection”

Part I: The Missing Mascot

Key:

True	the statement is true as long as my assumption is correct.
True?	the individual statement cannot be proved false based on the assumption being made.
True? ⊗	the individual statement cannot be proved false, but in light of another statement, one of the ⊗ statements must be false.
False (but that is okay)	the statement is false but since I assumed that this person is lying, then that is okay in terms of proving each case correct.

I first assumed that Adams stole the mascot. Then I checked to see if everything would be okay if that were true.

Adams:	I didn't do it	False (but that is okay)
	Benitez was hanging out near Goldenrod yesterday	True?
Benitez:	I didn't do it	True
	I've never been inside Goldenrod	True?
	Besides, I was out of town all that week	True? ⊗
Clark:	I didn't do it	True
	I say Adams and Benitez near Goldenrod that day	True? ⊗
	One of them did it	True

The two statements with the ⊗ cannot both be true, so one of them (Benitez or Clark) is a liar. If Adams was the culprit, then Benitez and Clark should have only told the truth. Therefore my assumption was incorrect, that is, Adams did not do it.

Next, I assumed that Benitez did it. I checked to see if everything would be okay if that was the case.

Adams:	I didn't do it	True
	Benitez was hanging out near Goldenrod yesterday	True
Benitez:	I didn't do it	False (but that is okay)
	I've never been inside Goldenrod	False (but that is okay)
	Besides, I was out of town all that week	False (but that is okay)
Clark:	I didn't do it	True
	I say Adams and Benitez near Goldenrod that day	True?
	One of them did it	True

This works, so Benitez must be the one who is guilty. However, I will check to make sure that Clark is not the culprit just to make sure.

Adams:	I didn't do it	True
	Benitez was hanging out near Goldenrod yesterday	True? ⊗
Benitez:	I didn't do it	True
	I've never been inside Goldenrod	True?
	Besides, I was out of town all that week	True? ⊗
Clark:	I didn't do it	False (but that is okay)
	I say Adams and Benitez near Goldenrod that day	True?
	One of them did it	False (but that is okay)

Because Adams' second comment and Benitez's third comment don't jive, this cannot be true (one of them is the liar when only Clark could lie in this scenario, so Clark did not do it. It checks out from above that Benitez must be the one sent to the youth correctional facility.

Part II

Suppose A said that he is a truth-teller. Then there are two possibilities:

A is a truth-teller.

Then

B must be a truth-teller.

C must be a liar.

A is a liar.

Then

B is a truth-teller.

C is a liar.

Suppose A said that he is a liar. There are two possibilities. (Neither of which can happen.)

A is a truth-teller.

Then

B must be a liar.

C is a truth-teller.

*If A is truth-teller, then he would have said
that he was a truth-teller, not that he is a liar.*

A is a liar

Then

B must be a liar.

C is a truth-teller.

*If A is a liar, then he would have said that
he was a truth-teller, not that he is a liar.*

Therefore, we can make the following conclusions:

A is a truth-teller.

B is a truth-teller.

C is a liar.

The bird needs to be muzzled when others are talking.

Part III

Triplet	Statement
Virna	"I am not the oldest."
Werner	"Virna was born first."
Myrna	"Werner is the oldest."

Werner says that Virna was born first, or in other words, Virna is the oldest. Virna says that she is not the oldest. So Werner and Virna have conflicting statements – one of them must be the liar.

Werner says that Virna is the oldest, but Myrna says that Werner is the oldest. So Werner and Myrna disagree – one of them must be a liar.

If Werner is telling the truth, then since she has conflicting statements with both Virna and Myrna, then Virna and Myrna must both be liars. But shiver me timbers, only one of the three is a liar. So, it must be Werner that is the terrible liar that should rot in hell. Virna and Myrna are little angels who tell the truth. Therefore, we know that Werner is the oldest of the three triplets.

Editorial:

This just goes to show that the psychologists are right when they state that the first-born are always the liars in the family. First-born kids should be sacrificed to Vishnu.