

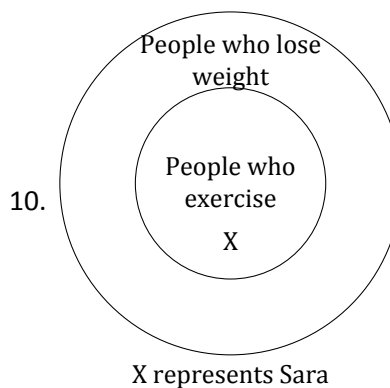
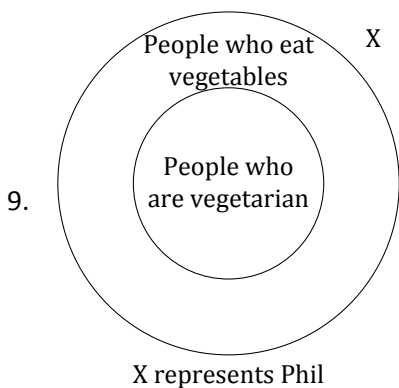
Analyzing Arguments with Euler Diagrams

Contemporary Math (MAT-130)

Use an Euler diagram to decide whether each argument is valid or invalid.

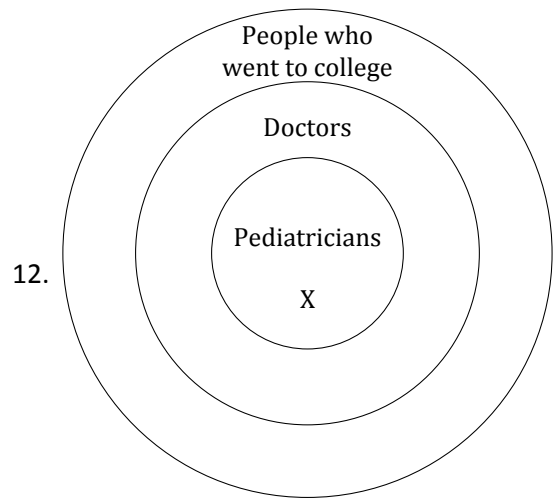
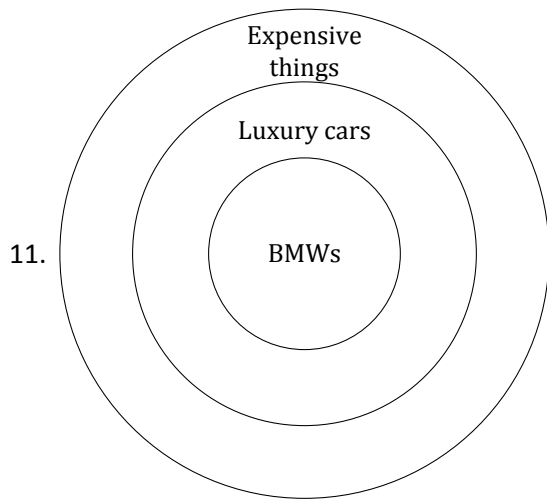
1. All horses wear horseshoes.
Seabiscuit is a horse.
Seabiscuit wears horseshoes.
2. All basketball players are tall.
Tiger Woods is not a basketball player.
Tiger Woods is not tall.
3. All cats like catnip.
Fluffy likes catnip.
Fluffy is a cat.
4. All college students are broke.
Adam is a college student.
Adam is broke.
5. All teenagers have a Facebook account.
Billy has a Facebook account.
Billy is a teenager.
6. All Spaniards speak Spanish.
Christine does not speak Spanish.
Christine is not a Spaniard.
7. Some cops carry a gun.
Lou carries a gun.
Lou is a cop.
8. Some rock stars have long hair.
Julia Roberts has long hair.
Julia Roberts is a rock star.

Construct a valid argument based on the Euler diagram shown.



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X represents Dr. Cole

As mentioned in the textbook, an argument can have a true conclusion yet be invalid. In these exercises, each argument has a true conclusion. Identify each argument as valid or invalid.

13. All dogs are animals.
All cats are animals.
A dog is not a cat.
14. All buildings have rooms.
All rooms have doors.
All buildings have doors.
15. Texas is east of California.
Florida is east of Texas.
Florida is east of California.
16. All trees need water.
All people need water.
A person is not a tree.

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Solutions:

1. Valid
2. Invalid
3. Invalid
4. Valid
5. Invalid
6. Valid
7. Invalid
8. Invalid
9. All vegetarians eat vegetables.
Phil does not eat vegetables.
Phil is not a vegetarian.
10. All people who exercise lose weight.
Sara exercises.
Sara loses weight.
11. All luxury cars are expensive things.
All BMWs are luxury cars.
All BMWs are expensive things.
12. All doctors went to college.
All pediatricians are doctors.
Dr. Cole is a pediatrician.
Dr. Cole went to college.
13. Invalid
14. Valid
15. Valid
16. Invalid