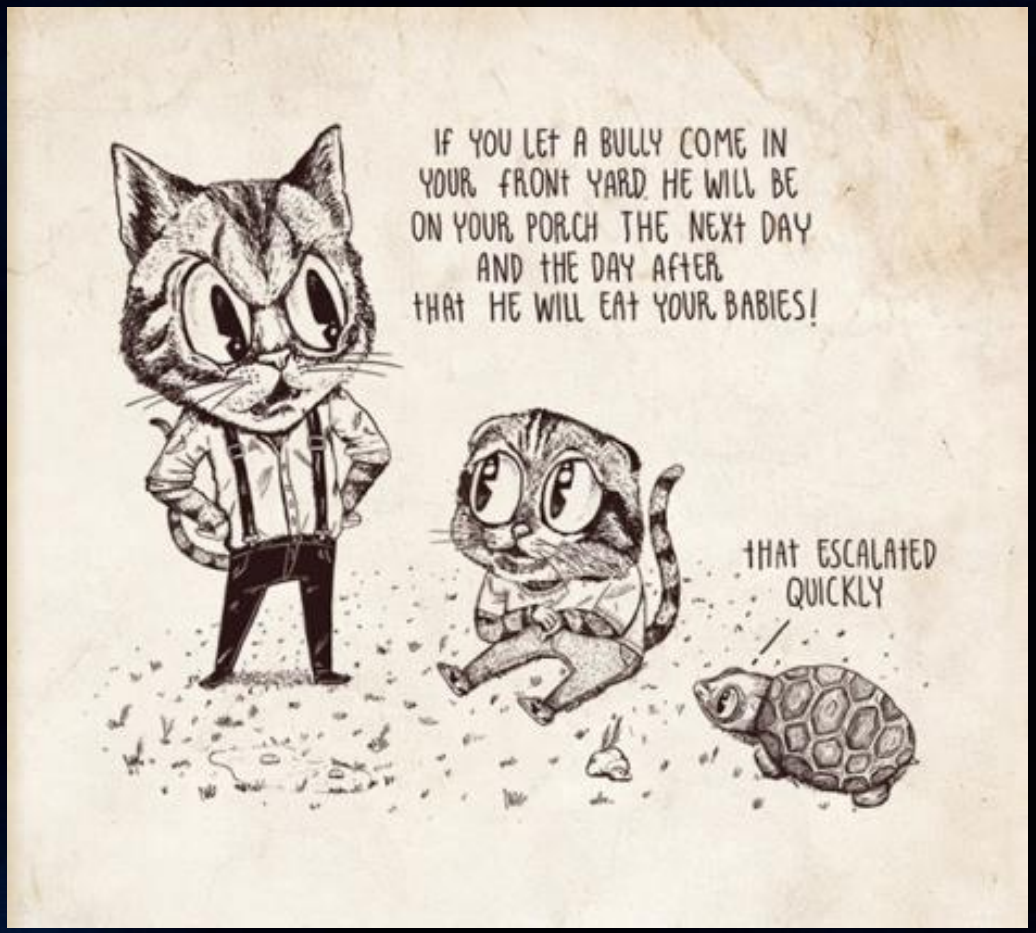


Arguments

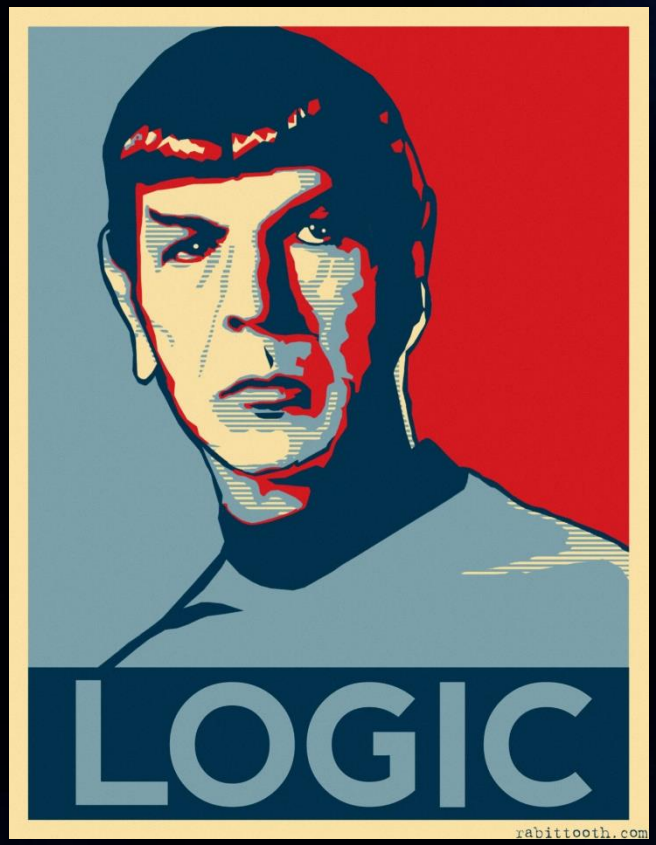
Unit 1

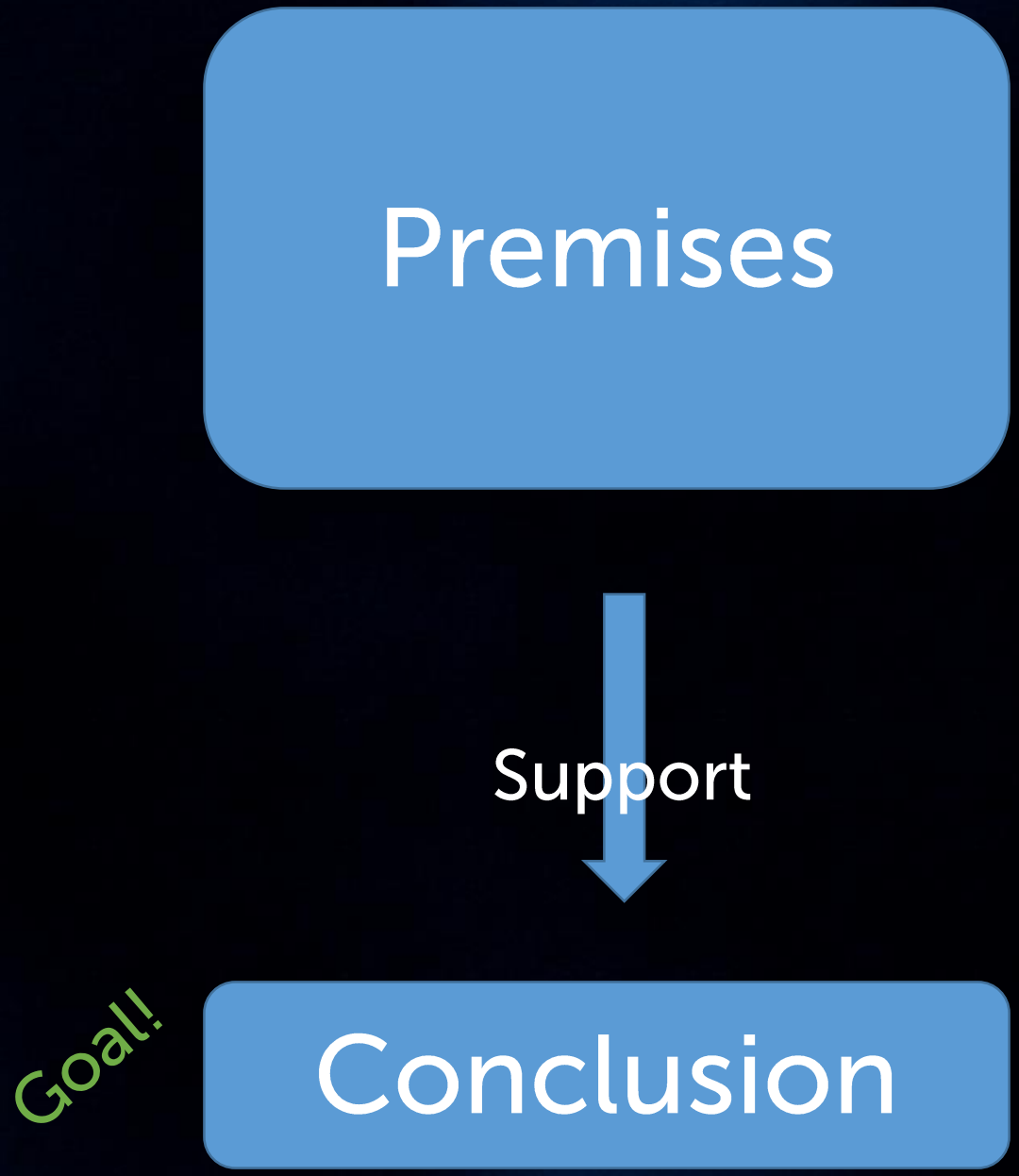
ABSTRACT study of ARGUMENTS

Arguments are made of STATEMENTS

Statements are sentences that are T (true) or F (false)

What are non-statements?




Premises
Support
Goal!
Conclusion

Deductive arguments are CERTAIN

Inductive and Abductive arguments are FALLIBLE

What is a good deductive argument?

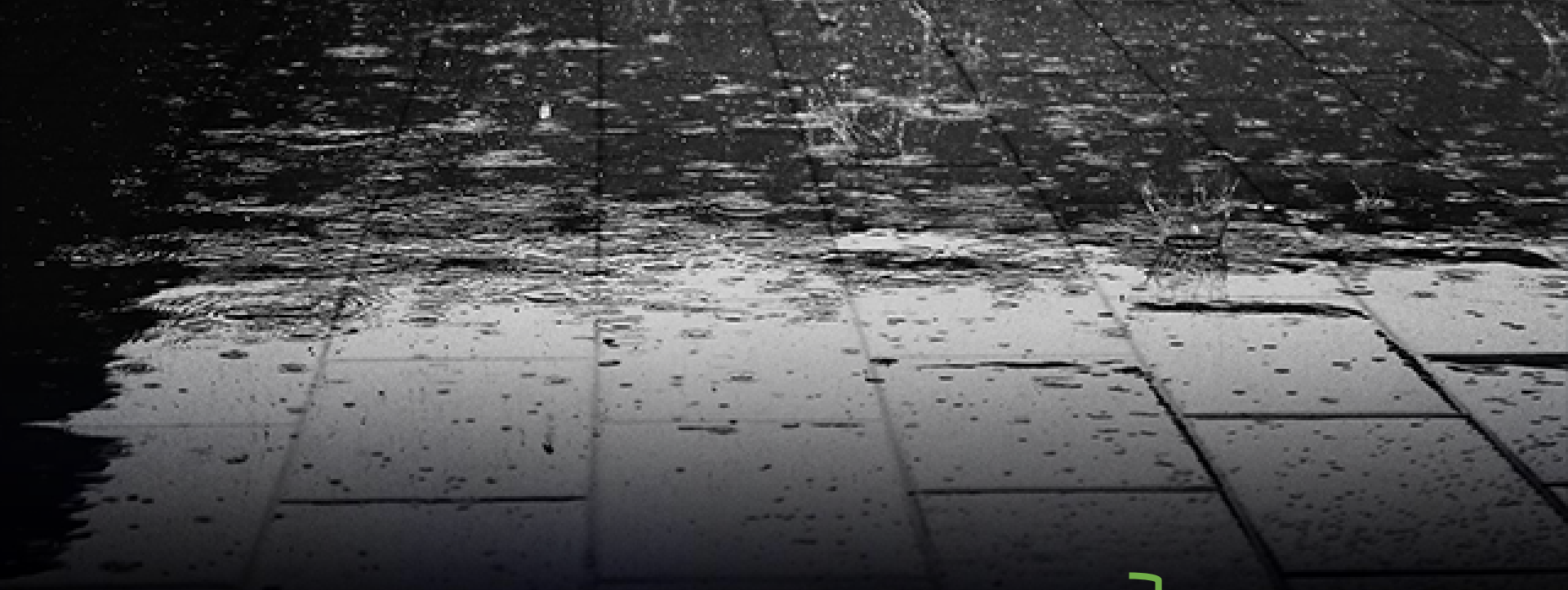
Two senses of good: VALID and SOUND

A deductive argument is valid iff:

whenever the premises are true
the conclusion must be true

or

it is IMPOSSIBLE for the premises to
be true and the conclusion to be false



If it's raining, then the sidewalk is wet.
It's raining.

} Premises

Therefore, the sidewalk is wet. Conclusion

If it's raining, then the sidewalk is wet.

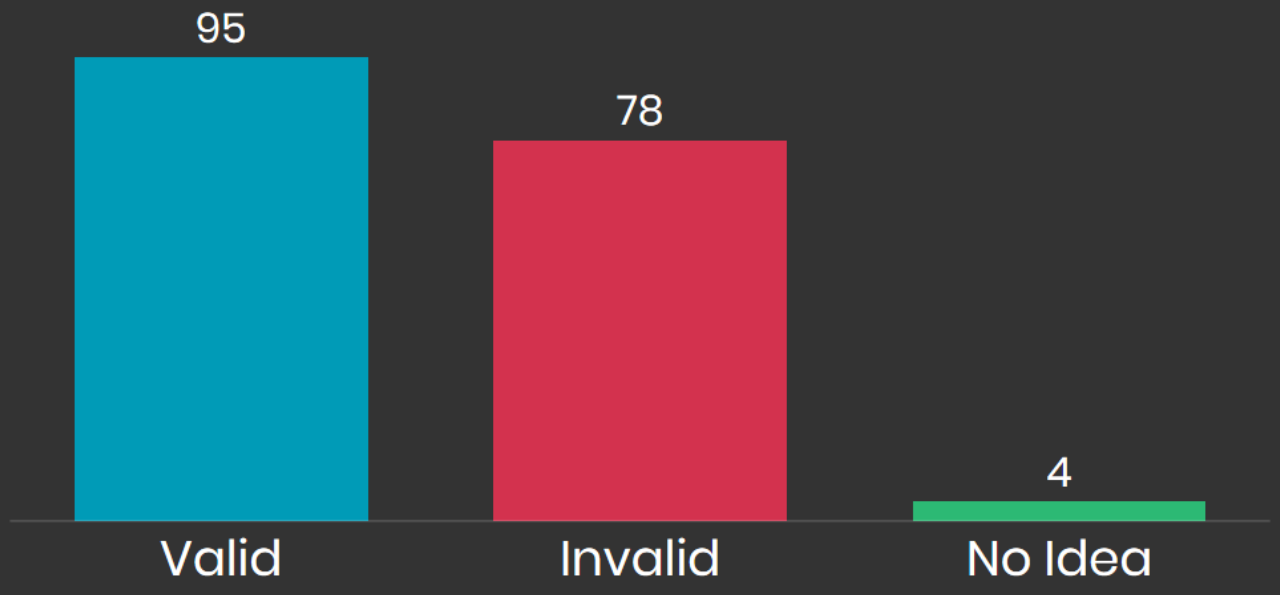
The sidewalk is wet.

Therefore, it's raining.

Go to **www.menti.com** and use the code **64 23 24**

Is this argument VALID or INAVLID?

Mentimeter



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If it's raining, then the sidewalk is wet.

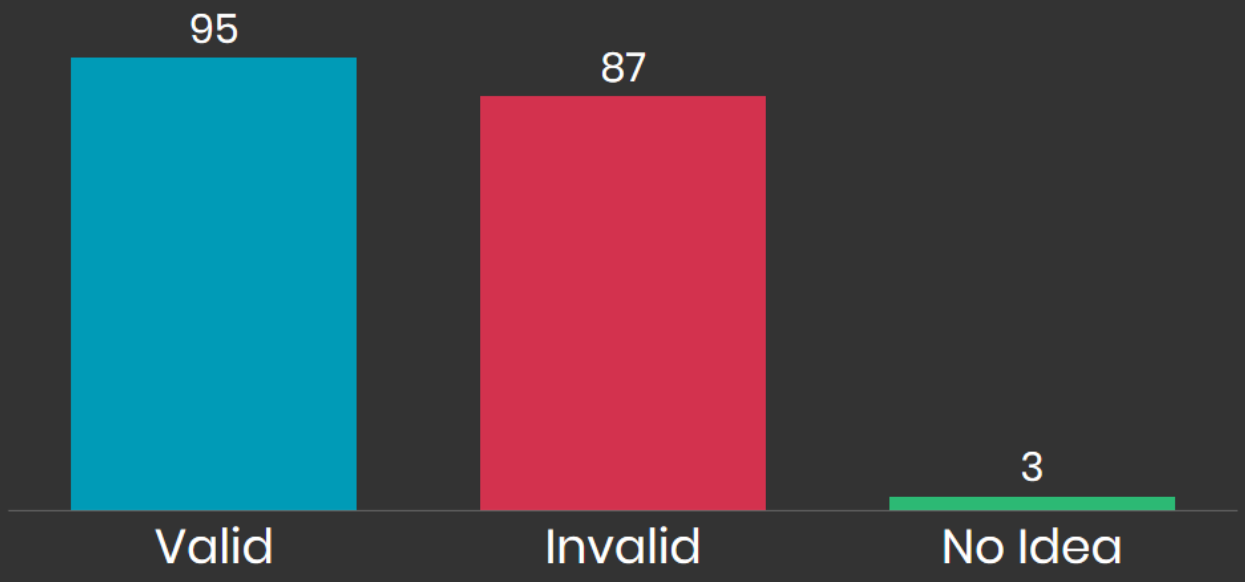
The sidewalk is not wet.

Therefore, it's not raining.

Go to **www.menti.com** and use the code **64 23 24**

Is this argument VALID or INAVLID?

Mentimeter



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Validity has nothing to do with content and everything to do with FORM or STRUCTURE

This bettlewind is nuzzling green or time.

It is not nuzzling time.

Therefore it is nuzzling green.

This means that TRUTH is irrelevant as well!

If unicorns roam UofT campus, then I will give you all 100%. Unicorns do roam the campus, so you'll all get perfect!

A deductive argument is INVALID iff:

it is not valid

or

it is POSSIBLE for the premises to be true
AND the conclusion to be false

TIP: It is often easier to test for invalidity

Either you're good at math or you're good at philosophy.

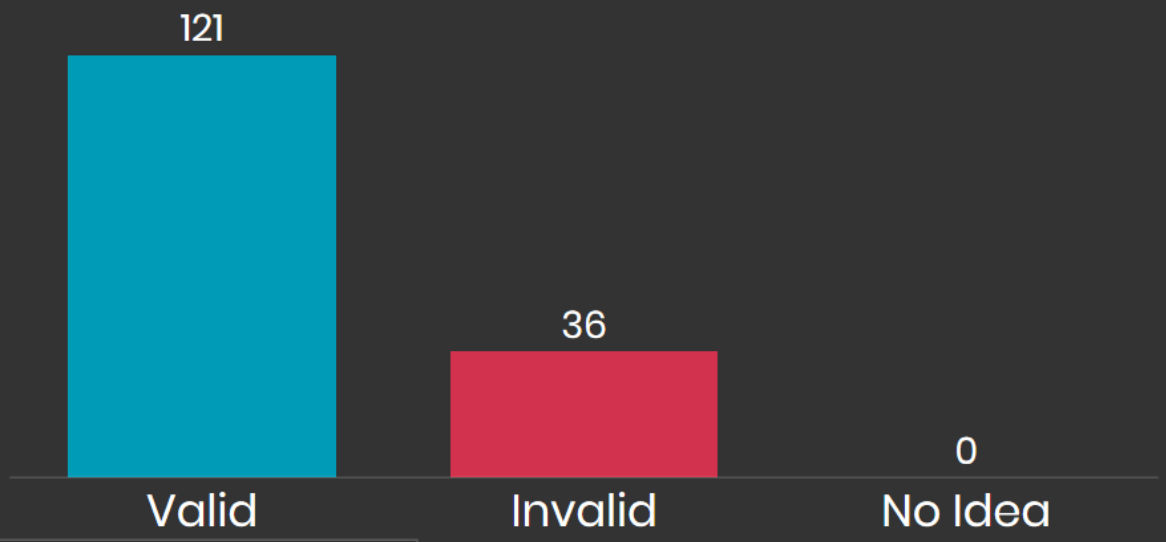
I'm good at philosophy.

Thus, I'm not good at math.

Go to **www.menti.com** and use the code **64 23 24**

Is this argument VALID or INAVLID?

Mentimeter



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Today is a day.

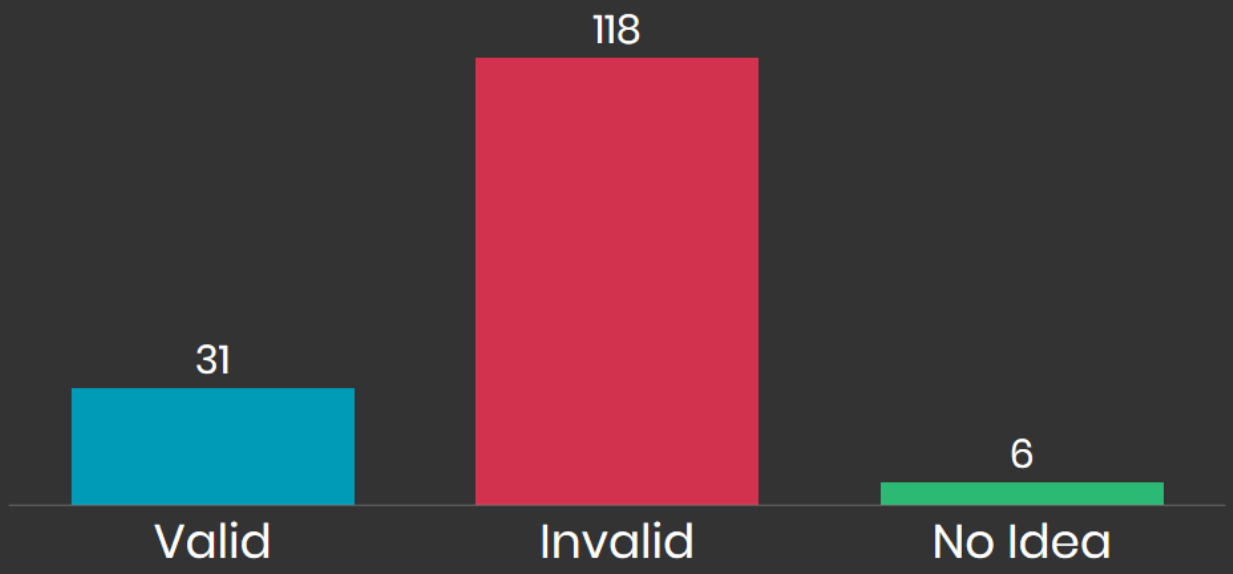
You are alive.

Therefore, my name is Alex.

Go to **www.menti.com** and use the code **64 23 24**

Is this argument VALID or INAVLID?

Mentimeter



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Non-Sequitor

Two Important Terms

TAUTOLOGY

- A sentence is a tautology if it is always true, or it can never be false
- It is raining OR not raining
- “It is BLAH or not BLAH”

CONTRADICTION

- A sentence is a contradiction if it is always false, or it can never be true
- It is raining AND not raining
- “It is BLAH and not BLAH”

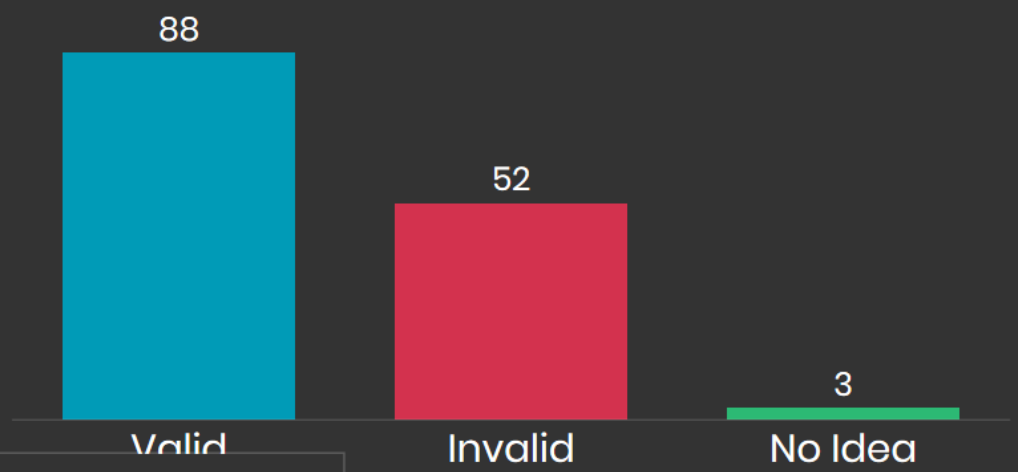
Some Tricky Arguments

I like cheese. Therefore, I am either tired or not tired.

Go to **www.menti.com** and use the code **64 23 24**

Is this argument VALID or INAVLID?

Mentimeter



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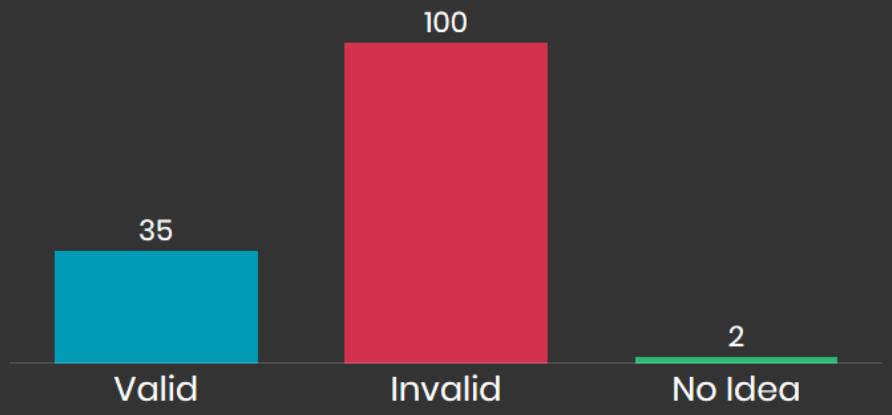
Some Tricky Arguments

I love all logic, but I don't love deductive reasoning. Therefore, the moon is made of green cheese.

Go to **www.menti.com** and use the code **64 23 24**

Is this argument VALID or INAVLID?

Mentimeter



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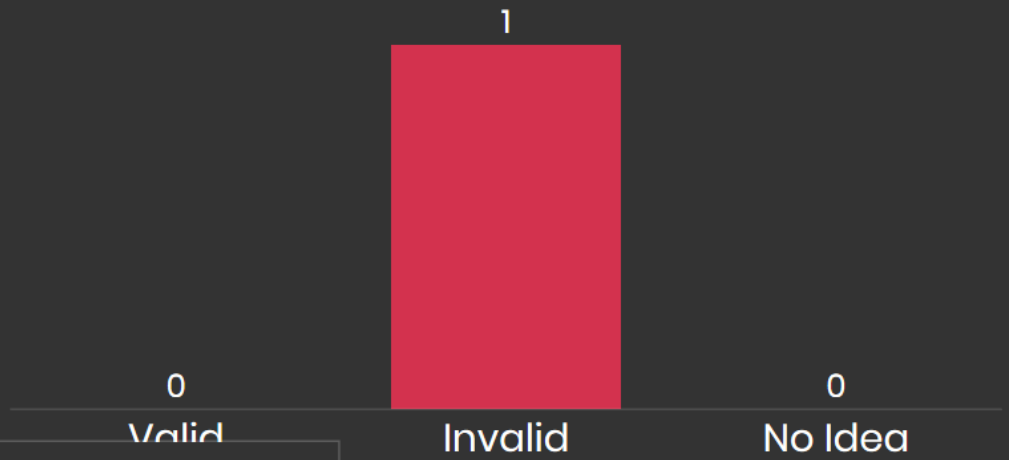
Some Tricky Arguments

I'm a hipster. Therefore I like irony and I dislike irony.

Go to **www.menti.com** and use the code **64 23 24**

Is this argument VALID or INAVLID?

Mentimeter



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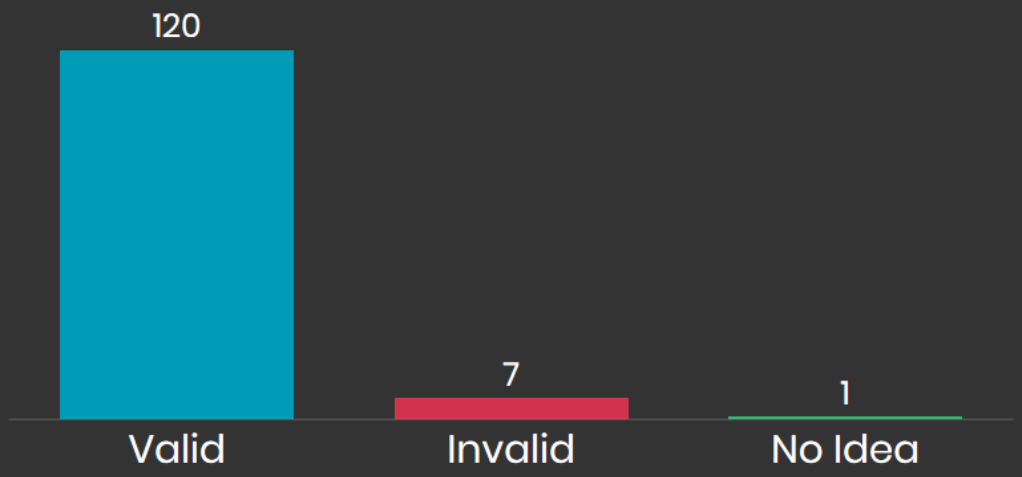
Some Tricky Arguments

I'm awesome. I also don't like cats. Therefore, I'm awesome.

Go to **www.menti.com** and use the code **64 23 24**

Is this argument VALID or INAVLID?

Mentimeter



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Remember:

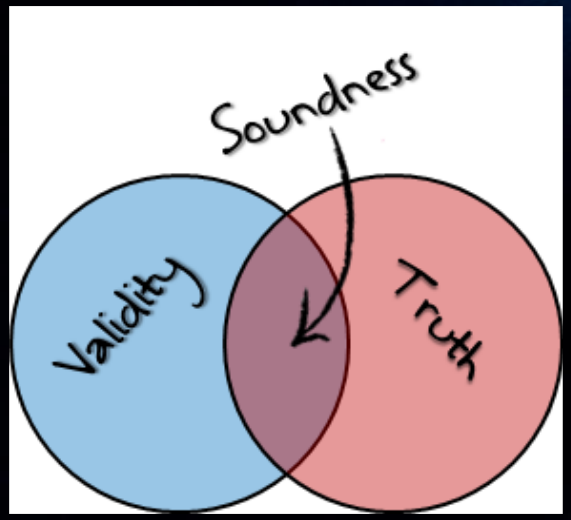
Validity is all about FORM and STRUCTURE,

and not about content and truth

A deductive argument is SOUND iff:

1. It is VALID

2. ALL the PREMISES are TRUE



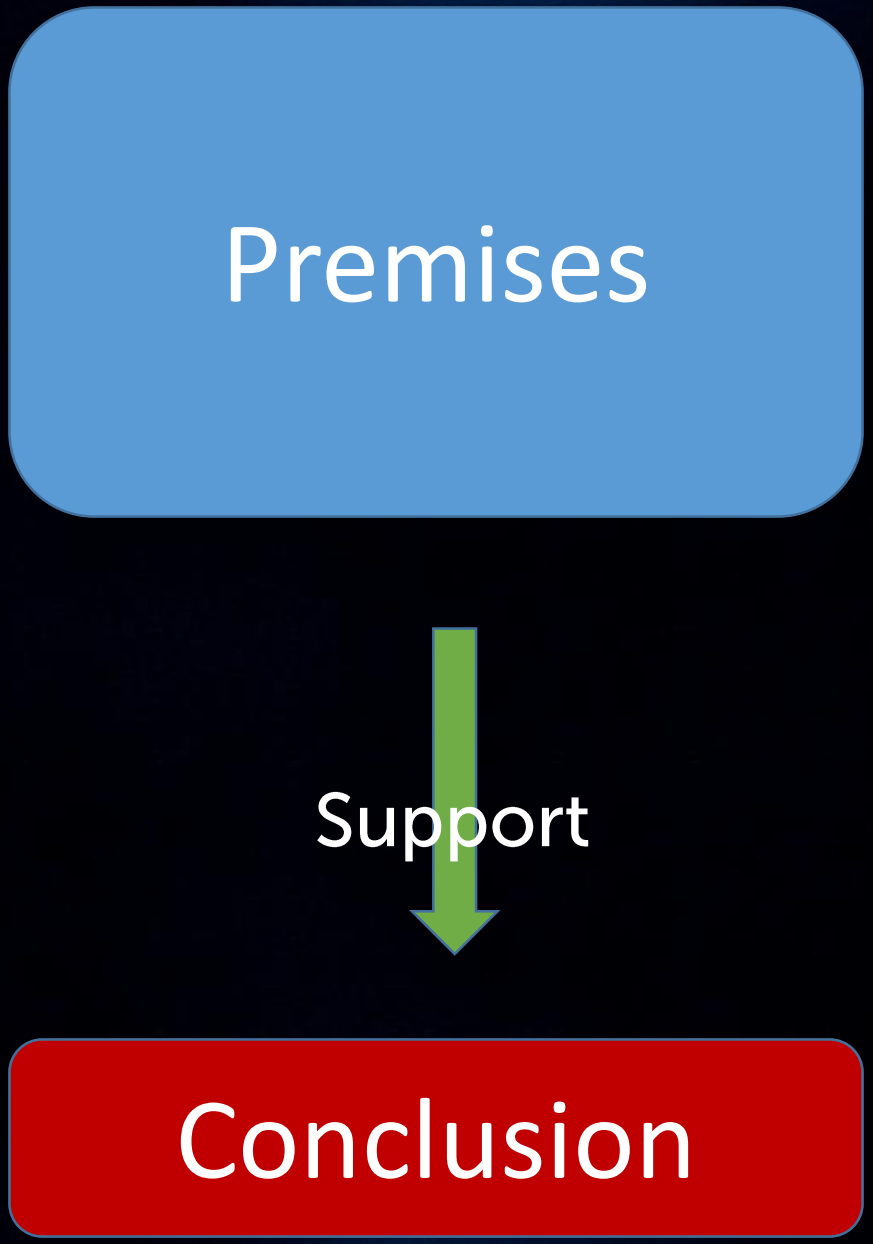
Form, content AND truth all matter!

INDUCTIVE arguments
are not valid or sound

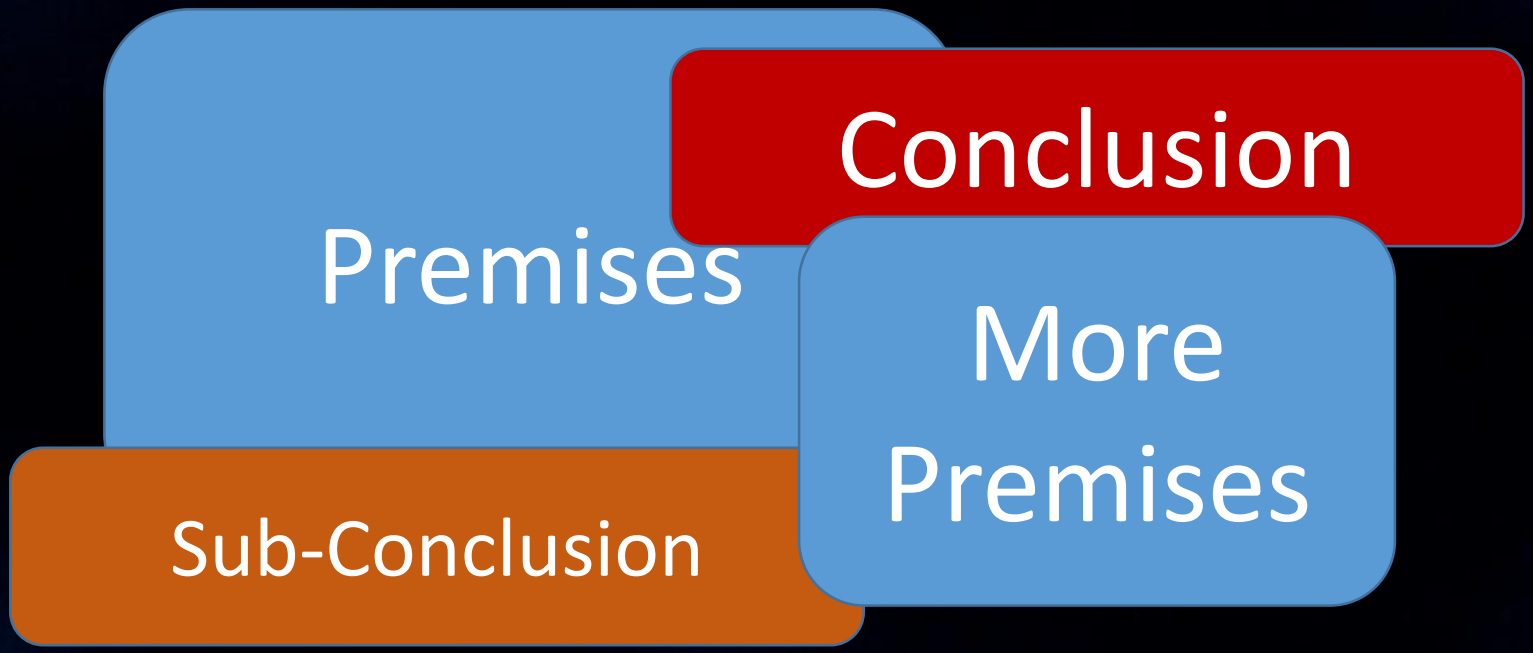
They are STRONG or COGENT

A cogent inductive argument
CAN have a false conclusion

This swan is white.
This other swan is white.
Every swan I have ever seen is white.
Therefore, all swans are white.


Premises
Support
Conclusion

Critical Reasoning



Premise Indicators

because
since
as
for
as shown by
follows from
as indicated by
in the first place

you can see from
seeing that
for the reasons that
assuming that
being that
inasmuch as
may be inferred from

can be deduced from
whereas
on account of
due to the fact that
suppose that
let us agree that
if one thinks that

Conclusion Indicators

- therefore
- thus
- so
- hence
- then
- in conclusion
- accordingly
- consequently
- as a result
- it follows that
- for this reason we see that
- it can be inferred that
- we can conclude that
- we can deduce
- proves that
- shows that
- indicates that
- this makes it clear that
- it must be that
- it cannot be denied then that

Some words are AMBIGUOUS indicators

You need to use context

Culprits: because, for, thus, since, and more

EXPLANATIONS are not arguments

The goal of an argument is to convince you of the conclusion

The goal of an explanation is to give an account for why the ‘conclusion’ happened

The Blue Jays will win the division since

they are the best team.

Since my dog ate my homework,

I did not hand in my assignment.

Validity