

GUIDE TO LOGICAL FALLACIES: STRUCTURAL ERRORS

1. AFFIRMING THE CONSEQUENT

STRUCTURAL ERROR:
If P, then Q.
Q is true.
Therefore, P is true.



EXAMPLE:

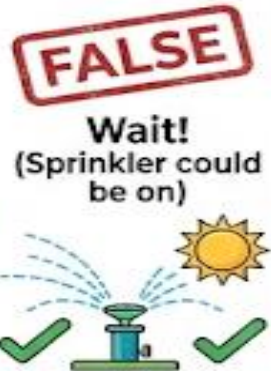


If it rains, the grass is wet.



The grass is wet.

Therefore it rained.



2. DENYING THE ANTECEDENT

STRUCTURAL ERROR:
If P, then Q.
P is false.
Therefore, Q is false.



EXAMPLE:



If you are a dentist, you have a job.



You are not a dentist.



Therefore you don't have a job.



Maybe they work in IT, are a baker, an artist, etc.

3. UNDISTRIBUTED MIDDLE

STRUCTURAL ERROR:
The middle term is not distributed in at least one premise.



EXAMPLE:



All Russians were revolutionists.



All anarchists were revolutionists.

Therefore, all anarchists were Russians.



The relationship between Anarchists and Russians is unclear. Anarchists can be from any nation.

UNDERSTANDING LOGICAL FALLACIES: ILLCIT MAJOR & ILLCIT MINOR

4 ILLCIT MAJOR

DEFINITION: The **MAJOR TERM** is distributed in the conclusion but **NOT** in the major premise.



ILLCIT MAJOR: **MAMMALS** is distributed in "NO CATS ARE MAMMALS", undistributed, but **undistributed** premise in "ALL DOGS ARE MAMMALS".

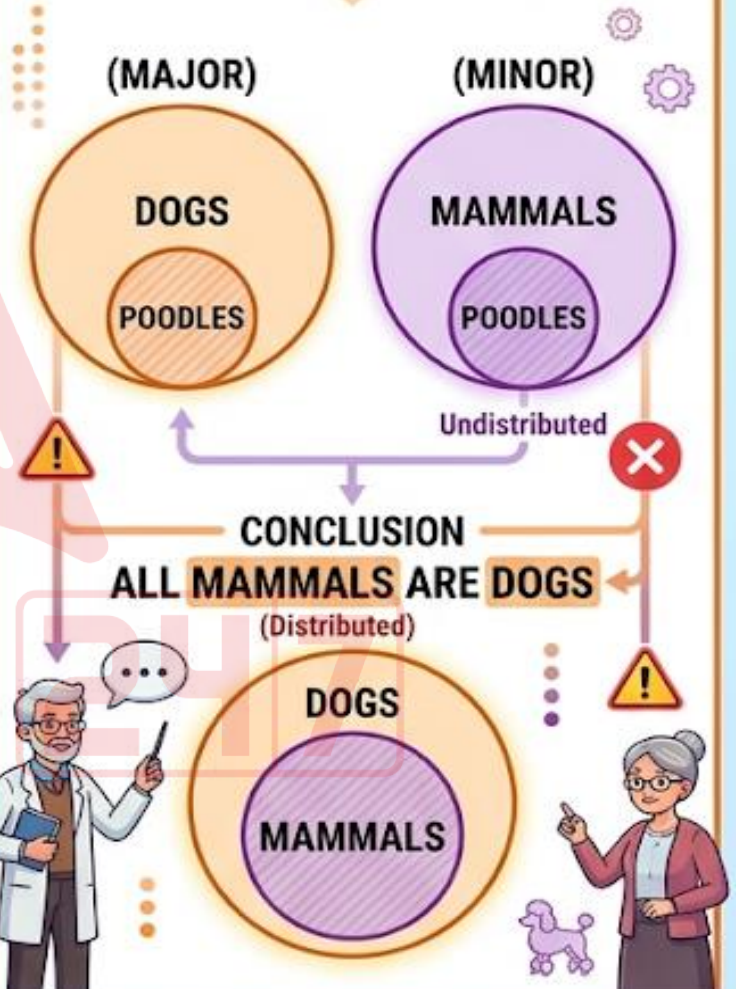
EXAMPLE:

(Major) All Dogs are Mammals.
(Minor) No Cats are Dogs.

(Conclusion) **✗** Therefore, No Cats are Mammals.

5 ILLCIT MINOR

DEFINITION: The **MINOR TERM** is distributed in the conclusion but **NOT** in the minor premise.



ILLCIT MINOR: **MAMMALS** is distributed in "ALL MAMMALS ARE DOGS", (Distributed, but **undistributed** in "ALL POODLES ARE MAMMALS".

EXAMPLE:

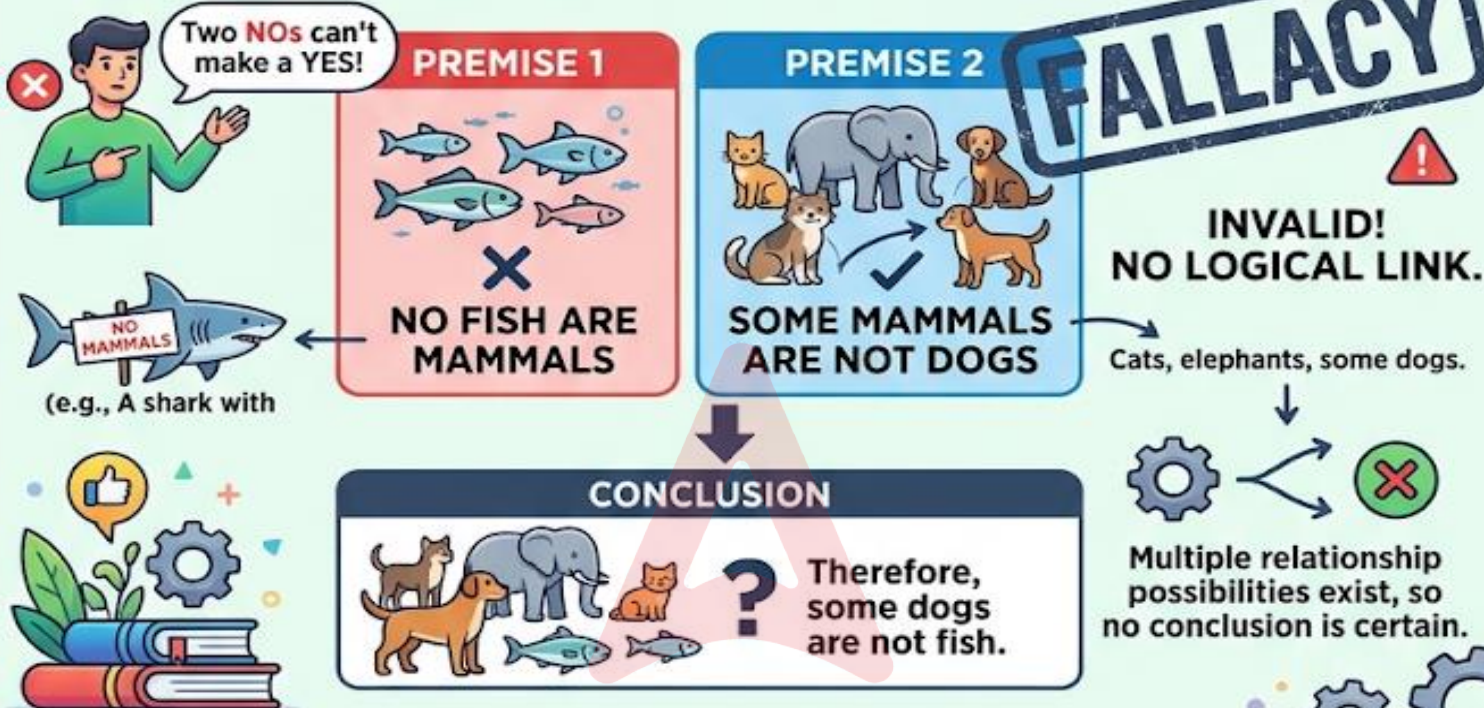
(Major) All Poodles are Dogs.
(Minor) All Poodles are Mammals.

(Conclusion) **✗** Therefore, All Mammals are Dogs.

FORMAL LOGICAL FALLACIES: A GRAPHIC GUIDE

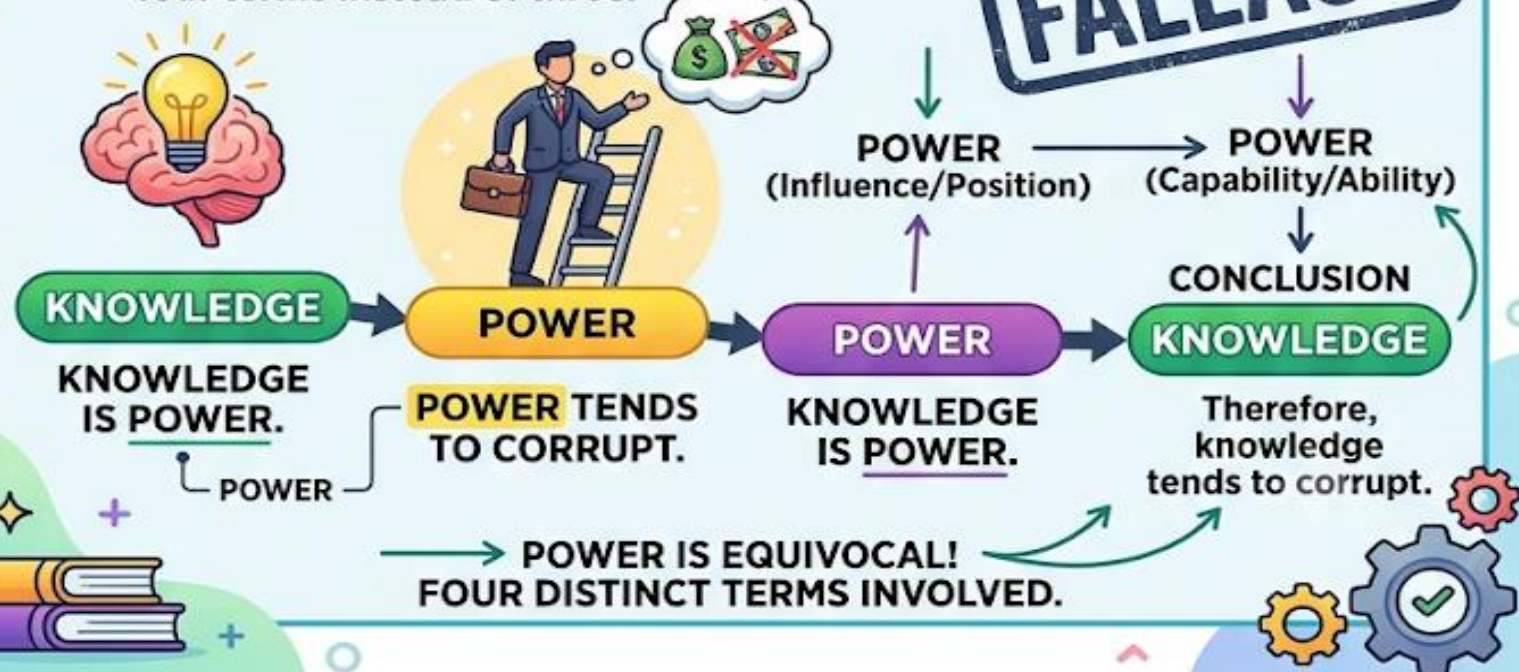
6. EXCLUSIVE PREMISES

A syllogism with two negative premises.



7. FALLACY OF FOUR TERMS

A categorical syllogism that uses four terms instead of three.



FORMAL RULES FOR VALID SYLLOGISMS

An argument is **"Invalid"** if it breaks any of these rules.
Breaking a rule creates a **Formal Fallacy**.

1



RULE 1: THE MIDDLE TERM MUST BE DISTRIBUTED AT LEAST ONCE.

(If not: Fallacy of Undistributed Middle)



VALID
In argument is coartric to valid or pote or weserment. Distributed rule creates a formal fallacy.



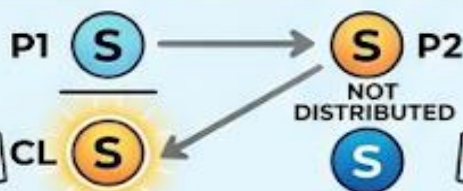
INVALID
In argument is smaltmpoken with other to valid. Distributed in creates i formal fallacy.



RULE 2: IF A TERM IS DISTRIBUTED IN THE CONCLUSION, IT MUST BE DISTRIBUTED IN ITS PREMISE.

(If not: Fallacy of Illicit Major or Illicit Minor)

2A 'ILLICIT MINOR FALLACY'

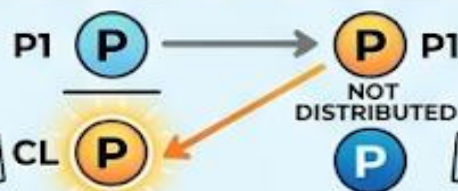


TERM DISTRIBUTED ONLY IN CONCLUSION

VALID DISTRIBUTIONS



2B 'ILLICIT MAJOR FALLACY'



TERM DISTRIBUTED ONLY IN CONCLUSION

VALID DISTRIBUTIONS



FORMAL RULES FOR VALID SYLLOGISMS

An argument is "Invalid" if it breaks any of these rules.
Breaking a rule creates a **Formal Fallacy**.

3



RULE 3: TWO NEGATIVE PREMISES ARE NOT ALLOWED.

(Conclusion cannot be drawn: Fallacy of Exclusive Premises)

INVALID: TWO NEGATIVE PREMISES

P1 (Premise 1):
No cats are dogs. (X NEGATIVE)

P2 (Premise 2):
Some pets are not dogs. (X NEGATIVE)



NO CONCLUSION POSSIBLE

FALLACY OF EXCLUSIVE PREMISES

VALID: MIXED OR POSITIVE PREMISES

EXAMPLE 1: ONE NEGATIVE PREMISE

P1: No cats are dogs. (X NEGATIVE)

P2: All pets are cats. (✓ POSITIVE)

CL: No pets are dogs.

VALID



EXAMPLE 2: TWO POSITIVE PREMISES

P1: All cats are animals. (✓ POSITIVE)

P2: Some pets are cats. (✓ POSITIVE)

CL: Some pets are animals.

VALID



FORMAL RULES FOR VALID SYLLOGISMS

An argument is “Invalid” if it breaks any of these rules.
Breaking a rule creates a **Formal Fallacy**.

4



RULE 4: IF ONE PREMISE IS NEGATIVE, THE CONCLUSION MUST BE NEGATIVE.



(If not: Fallacy of Negative Conclusion from Affirmative Premises or Invalid Conclusion)

INVALID: POSITIVE PREMISES WITH NEGATIVE CONCLUSION

P1 (Premise 1):

All cats are animals.
(✓ POSITIVE)



P2 (Premise 2):

All pets are cats. (✓ POSITIVE)
(✓ POSITIVE)

CL (Conclusion):

Therefore, no pets are dogs.
(✗ NEGATIVE)



**FALLACY OF
NEGATIVE**

**CONCLUSION FROM
AFFIRMATIVE PREMISES**

VALID: NEGATIVE PREMISE WITH NEGATIVE CONCLUSION

EXAMPLE 1: ONE NEGATIVE PREMISE

P1: No cats are dogs. (✗ NEGATIVE)

P2: All pets are cats. (✓ POSITIVE)

**CL: Therefore,
no pets are dogs. (✗ NEGATIVE)**

VALID



EXAMPLE 2: NEGATIVE PREMISE

P1: Ao cats are dogs. (✗ NEGATIVE)

P2: All pets are cats. (✓ POSITIVE)

CL: Therefore, no pets are dogs. (✗ NEGATIVE)

VALID



FORMAL RULES FOR VALID SYLLOGISMS

An argument is “Invalid” if it breaks any of these rules.
Breaking a rule creates a **Formal Fallacy**.

5



RULE 5: TWO PARTICULAR PREMISES (I and O) CANNOT YIELD A CONCLUSION.

(If not: Fallacy of Two Particular Premises or Invalid Conclusion)

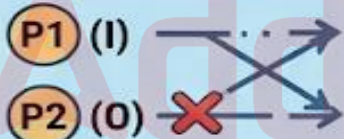
INVALID: TWO PARTICULAR PREMISES

P1 (Premise 1):
Some dogs are pets.
(✓ I-form, Particular)



P2 (Premise 2):
Some pets are not dogs.
(✗ O-form, Particular)

? NO CONCLUSION POSSIBLE ✗



FALLACY OF TWO PARTICULAR PREMISES

VALID: MIXED OR UNIVERSAL PREMISES

EXAMPLE: At least one Premise is Universal

P1: (Premise 1):
All pets are dogs.
(✓ A-form, Universal)



P2: (Premise 2):
No dogs are pets.
(✓ E-form, Universal)

CL: (Conclusion): ✓
Valid Conclusion can be drawn
(e.g., Some A are B, or No A are B).

VALID

VALID DISTRIBUTIONS



[Attempt Quiz Click Here](#)