The Syllogisms Diagrammed

Forms in this document:

OOA

OOE

OOI

OOO

Each form includes figures 1 through 4.

The Syllogisms Diagrammed

Each page describes one of the 256 syllogisms. Here is the page format.

==

Name of form: AAA, EIO, OOE, &c.
    Figure: 1, 2, 3, 4

Premises as stated: Venn diagram showing what the premises say.

Purported conclusion: Venn diagram showing what the premises claim to say.

Relation of premises to conclusion. Intended to describe how the content of the premises and the statement in the conclusion logically relate to each other. Used in only a few examples.

    Validity. The syllogism is valid.
    Superfluity. The premises prove more than the
        conclusion states.
    Subcontariety. The premises and conclusion can be
        true together, but they cannot be false together.
    Irrelevance. The content of the premises is unrelated
        to the conclusion.
    Insufficiency. The premises lack sufficient information
        to show the truth of the conclusion.
    Contrariety. The premises and conclusion can be false
        together, but they cannot be true together.
    Contradiction. The premises and conclusions directly
        contradict each other. If one is true, the other is
        false.

Distribution

This section is intended to create a system in which each syllogism has a unique code. In each premise, there are three numbers to indicate the subject, the predicate, and the middle term. Each term is assigned a one or a zero.

For the subject and predicate, one means the term is distributed; zero means that the term is undistributed. These meanings also apply in the conclusion.

For the middle term in each premise, one means that the predicate is the middle term; zero means that the subject is the middle term.

Example. EIO in the first figure says: No M are P; Some S are M; thus Some S are not P. The full code is 110/001/01. The major premise is 110; the subject is distributed, the predicate is distributed, and the middle term is the subject. The minor premise is 001; the subject and predicate are both undistributed, and the predicate is the middle term. The conclusion is 01; the subject is undistributed but the predicate is.
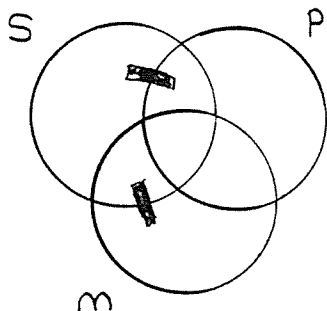
Rules

This section lists the rules that define a syllogism. Each rule is stated, followed by the name for the violation of that rule.
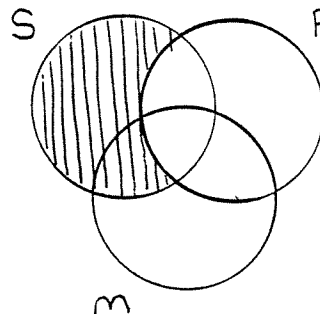
The symbol One indicates that the syllogism follows the rule; Zero indicates that the syllogism violates the rule; and a Dash indicates that the rule is irrelevant to that particular syllogism.

Premises As Stated   Purported Conclusion

S   P   S   P

M   M

Relation of premises to conclusion:

Exist   Hypo

___	___ Validity
___	___ Superfluity
___	___ Subcontrariety
___	___ Irrelevance
___	___ Insufficiency
___	___ Contrariety
___	___ Contradiction

Text:

Major premise: _Some M are not P_

Minor premise: _Some S are not M_

Conclusion: _All S are P_

Distribution:

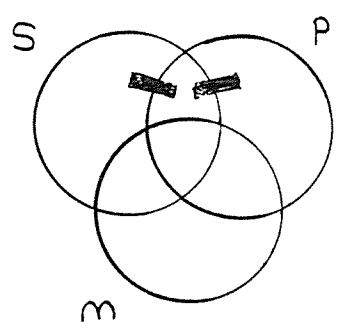|	Major			Minor			Conclusion	
S	P	M	S	P	M		S	P
O	I	M̶	O	I	M̶		I	O
		O			I			

Rules:

/ Middle term distributed in at least one premise (undistributed middle).

— If major term is distributed in the conclusion, it is distributed in the premise (illicit major).

O If minor term is distributed in the conclusion, it is distributed in the premise (illicit minor).

O The syllogism has no negative premises, or only one, but not two. (exclusive premises).

O If one premise is negative, then the conclusion is negative (affirmative conclusion from negative premises).

— If the conclusion is negative, then one premise must be negative (negative premises).

— If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).
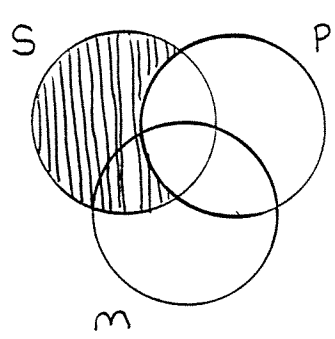
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Premises As Stated   **Purported Conclusion**

Relation of premises to conclusion:

Exist   Hypo

___	___ Validity
___	___ Superfluity
___	___ Subcontrariety
___	___ Irrelevance
___	___ Insufficiency
___	___ Contrariety
___	___ Contradiction

Text:

Major premise: _Some P are not M_

Minor premise: _Some S are not M_

Conclusion: _All S are P_

Distribution:	**Major**			**Minor**			**Conclusion**	
	S	P	M	S	P	M	S	P
	◯	l	∅	◯	l	∅	l	◯
			l			l		

Rules:

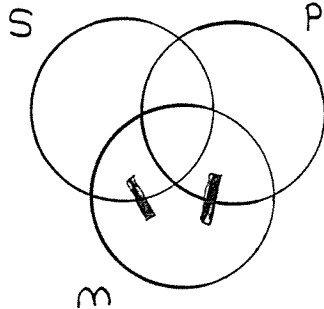_l___ Middle term distributed in at least one premise (undistributed middle).

_➖___ If major term is distributed in the conclusion, it is distributed in the premise (illicit major).

_◯___ If minor term is distributed in the conclusion, it is distributed in the premise (illicit minor).

_◯___ The syllogism has no negative premises, or only one, but not two. (exclusive premises).

_◯___ If one premise is negative, then the conclusion is negative (affirmative conclusion from negative premises).

_➖___ If the conclusion is negative, then one premise must be negative (negative premises).

_➖___ If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).

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Premises As Stated   Purported Conclusion

Relation of premises to conclusion:

Exist Hypo

___	___Validity
___	___Superfluity
___	___Subcontrariety
___	___Irrelevance
___	___Insufficiency
___	___Contrariety
___	___Contradiction

Text:

Major premise: _Some M are not P_

Minor premise: _Some M are not S_

Conclusion: _All S are P_

Distribution: Major   Minor   Conclusion

S P M   S P M   S P

O l ⚡/ O l O, l O

O

Rules:

O   Middle term distributed in at least one premise
―   (undistributed middle).
l   If major term is distributed in the conclusion, it is distributed in the
―   premise (illicit major).
O   If minor term is distributed in the conclusion, it is distributed in the
―   premise (illicit minor).
O   The syllogism has no negative premises, or only one, but not two.
―   (exclusive premises).
―   If one premise is negative, then the conclusion is negative
―   (affirmative conclusion from negative premises).
―   If the conclusion is negative, then one premise must be negative
    (negative premises).
    If the syllogism has a particular conclusion, then it does not have
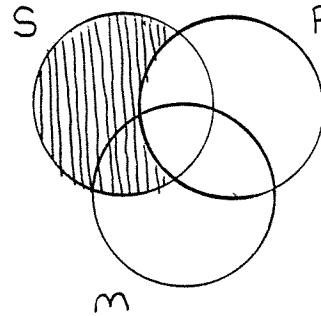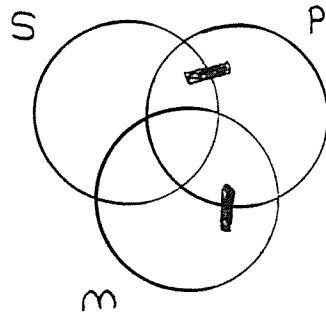   two universal premises (existential fallacy).

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Premises As Stated	Purported Conclusion

Relation of premises to conclusion:

Exist   Hypo

Exist	Hypo	
___	___	Validity
___	___	Superfluity
___	___	Subcontrariety
___	___	Irrelevance
___	___	Insufficiency
___	___	Contrariety
___	___	Contradiction

Text:

Major premise: Some P are not M

Minor premise: Some M are not S

Conclusion: All S are P

Distribution:	Major	Minor	Conclusion
	S P M	S P M	S P
	O I ~~M~~ /	O I ~~M~~ /	I O
	)	O	

Rules:

__I__ Middle term distributed in at least one premise (undistributed middle).

__�ær__ If major term is distributed in the conclusion, it is distributed in the premise (illicit major).

__I__ If minor term is distributed in the conclusion, it is distributed in the premise (illicit minor).

__O__ The syllogism has no negative premises, or only one, but not two. (exclusive premises).

__O__ If one premise is negative, then the conclusion is negative (affirmative conclusion from negative premises).

__—__ If the conclusion is negative, then one premise must be negative (negative premises).

__—__ If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).
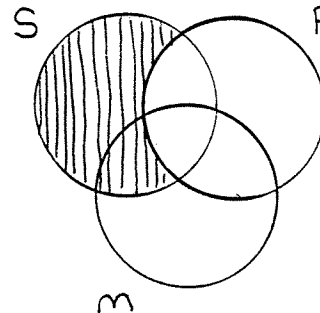
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Premises As Stated

S   P

M

Purported Conclusion

S   P

M

Relation of premises to conclusion:

Exist   Hypo

Exist	Hypo	
__	____	Validity
__	____	Superfluity
__	____	Subcontrariety
__	____	Irrelevance
__	____	Insufficiency
__	____	Contrariety
__	____	Contradiction

Text:

Major premise: _Some M are not P_

Minor premise: _Some S are not M_

Conclusion: _No S are P_

Distribution:

	Major			Minor			Conclusion	
	S	P	M	S	P	M	S	P
	⊃	i	M̸ /	⊃	i	M̸ /	i	i
			O				l	

Rules:

_l_ Middle term distributed in at least one premise (undistributed middle).

_l_ If major term is distributed in the conclusion, it is distributed in the premise (illicit major).

_O_ If minor term is distributed in the conclusion, it is distributed in the premise (illicit minor).

_O_ The syllogism has no negative premises, or only one, but not two. (exclusive premises).

_l_ If one premise is negative, then the conclusion is negative (affirmative conclusion from negative premises).

_l_ If the conclusion is negative, then one premise must be negative (negative premises).

_—_ If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).
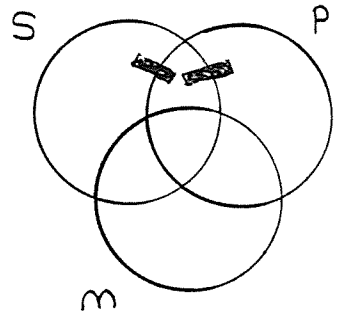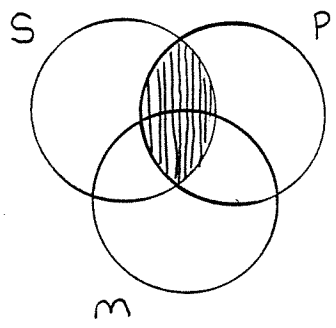
11/20/90

Premises As Stated   **Purported Conclusion**

S   P   S   P

M   M

Relation of premises to conclusion:

Exist   Hypo

| | Text: |

___ ___Validity
___ ___Superfluity
___ ___Subcontrariety
___ ___Irrelevance
___ ___Insufficiency
___ ___Contrariety
___ ___Contradiction

Text:

Major premise: _Some P are not M_

Minor premise: _Some S are not M_

Conclusion: _No S are P_

Distribution: Major   Minor   Conclusion

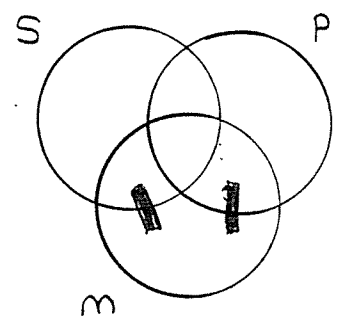| S P M	S P M	S P
◯ I ~~M~~ /	◯ i ~~M~~ /	I I

Rules:

_I_ Middle term distributed in at least one premise
    (undistributed middle).

_◯_ If major term is distributed in the conclusion, it is distributed in the
    premise (illicit major).

_◯_ If minor term is distributed in the conclusion, it is distributed in the
    premise (illicit minor).

_◯_ The syllogism has no negative premises, or only one, but not two.
    (exclusive premises).

_I_ If one premise is negative, then the conclusion is negative
    (affirmative conclusion from negative premises).

_I_ If the conclusion is negative, then one premise must be negative
    (negative premises).

_—_ If the syllogism has a particular conclusion, then it does not have
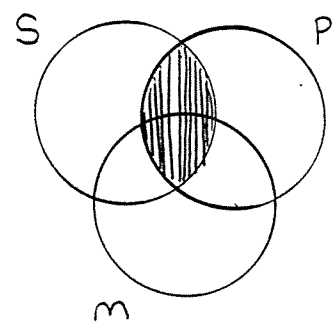   two universal premises (existential fallacy).

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Premises As Stated

Purported Conclusion

Relation of premises to conclusion:

Exist   Hypo

Exist	Hypo	
___	___	Validity
___	___	Superfluity
___	___	Subcontrariety
___	___	Irrelevance
___	___	Insufficiency
___	___	Contrariety
___	___	Contradiction

Text:

Major premise: _Some M are not P_

Minor premise: _Some M are not S_

Conclusion: _No S are P_

Distribution:

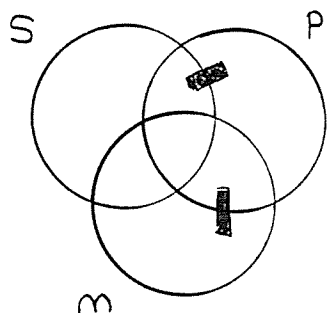|	Major			Minor			Conclusion	
	S	P	M	S	P	M	S	P
	‿	I	⫽,	‿	I	⫽,	I	I
			O			O		

Rules:

⟲ Middle term distributed in at least one premise (undistributed middle).

I If major term is distributed in the conclusion, it is distributed in the premise (illicit major).

I If minor term is distributed in the conclusion, it is distributed in the premise (illicit minor).

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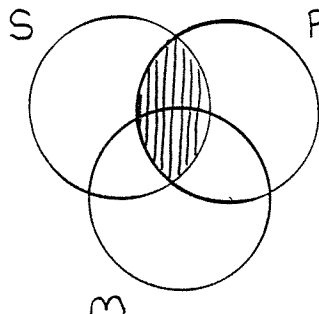
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Premises As Stated

S   P

m

Purported Conclusion

S   P

m

Relation of premises to conclusion:

Exist   Hypo

Exist	Hypo	
—	—	Validity
—	—	Superfluity
—	—	Subcontrariety
—	—	Irrelevance
—	—	Insufficiency
—	—	Contrariety
—	—	Contradiction

Text:

Major premise: _Some P are not M_

Minor premise: _Some M are not S_

Conclusion: _No S are P_

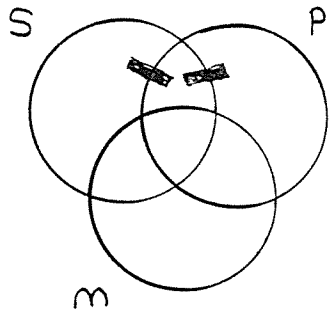| Distribution:	Major			Minor			Conclusion	
	S	P	M	S	P	M	S	P
	◯	l	M̸	◯	l	M̸	l	l
			l			O		

Rules:

_l_ Middle term distributed in at least one premise (undistributed middle).

_O_ If major term is distributed in the conclusion, it is distributed in the premise (illicit major).

_l_ If minor term is distributed in the conclusion, it is distributed in the premise (illicit minor).

_O_ The syllogism has no negative premises, or only one, but not two. (exclusive premises).

_l_ If one premise is negative, then the conclusion is negative (affirmative conclusion from negative premises).

_l_ If the conclusion is negative, then one premise must be negative (negative premises).

_–_ If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).
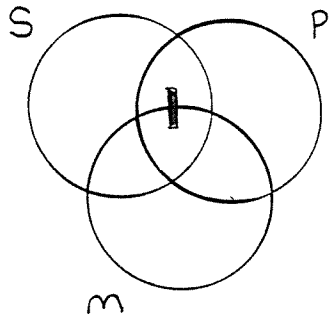
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Premises As Stated   Purported Conclusion

Relation of premises to conclusion:

Exist   Hypo

Exist	Hypo	
——	——	Validity
——	——	Superfluity
——	——	Subcontrariety
——	——	Irrelevance
——	——	Insufficiency
——	——	Contrariety
——	——	Contradiction

Text:

Major premise: _Some M are not P_

Minor premise: _Some S are not M_

Conclusion: _Some S are P_

Distribution: Major   Minor   Conclusion

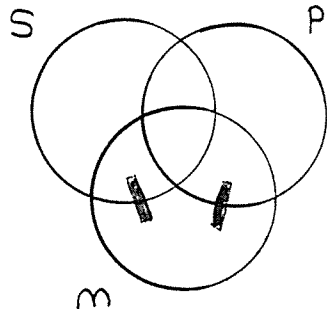|	S	P	M		S	P	M		S	P
	◯	i	~~M~~ ,		◯	i	~~M~~ ,		◯	◯
			◯				)			

Rules:

_|_ Middle term distributed in at least one premise
(undistributed middle).

_—_ If major term is distributed in the conclusion, it is distributed in the
premise (illicit major).

_—_ If minor term is distributed in the conclusion, it is distributed in the
premise (illicit minor).

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(affirmative conclusion from negative premises).

_=_ If the conclusion is negative, then one premise must be negative
(negative premises).

_|_ If the syllogism has a particular conclusion, then it does not have
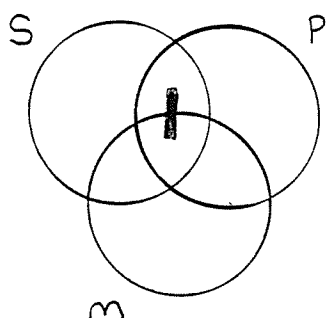two universal premises (existential fallacy).

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Premises As Stated

S — P

m

Purported Conclusion

S — P

m

Relation of premises to conclusion:

Exist   Hypo

__	____	Validity
__	____	Superfluity
__	____	Subcontrariety
__	____	Irrelevance
__	____	Insufficiency
__	____	Contrariety
__	____	Contradiction

Text:

Major premise: _Some P are not M_

Minor premise: _Some S are not M_

Conclusion: _Some S are P_

Distribution:

	Major			Minor			Conclusion	
S	P	M	S	P	M	S	P	
◯	i	▓ /	◯	i	▓ /	◯	◯	
		|			/			

Rules:

_/_ Middle term distributed in at least one premise (undistributed middle).

_—_ If major term is distributed in the conclusion, it is distributed in the premise (illicit major).

_➤_ If minor term is distributed in the conclusion, it is distributed in the premise (illicit minor).

_◯_ The syllogism has no negative premises, or only one, but not two. (exclusive premises).

_◯_ If one premise is negative, then the conclusion is negative (affirmative conclusion from negative premises).

_◄_ If the conclusion is negative, then one premise must be negative (negative premises).

_/_ If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).

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<u>Premises As Stated</u>   <u>Purported Conclusion</u>

<u>Relation of premises to conclusion</u>:

Exist Hypo

___	___Validity
___	___Superfluity
___	___Subcontrariety
___	___Irrelevance
___	___Insufficiency
___	___Contrariety
___	___Contradiction

<u>Text</u>:

Major premise: _Some M are not P_

Minor premise: _Some M are not S_
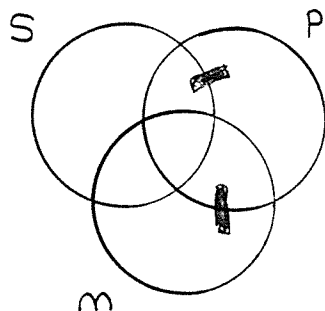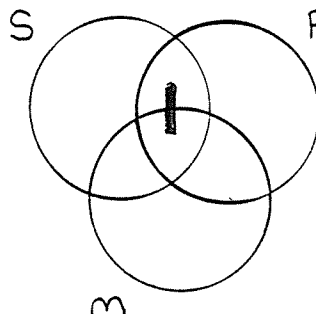
Conclusion: _Some S are P_

<u>Distribution</u>:   Major   Minor   Conclusion

    S P M   S P M   S P

    O I ⊮/   ⊃ I ⊮/   O O
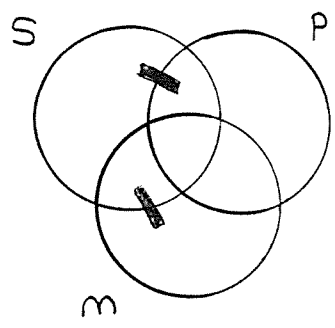   O   O

<u>Rules</u>:

O Middle term distributed in at least one premise
   (undistributed middle).

— If major term is distributed in the conclusion, it is distributed in the
   premise (illicit major).

— If minor term is distributed in the conclusion, it is distributed in the
   premise (illicit minor).

O The syllogism has no negative premises, or only one, but not two.
   (exclusive premises).

O If one premise is negative, then the conclusion is negative
   (affirmative conclusion from negative premises).

— If the conclusion is negative, then one premise must be negative
   (negative premises).

1 If the syllogism has a particular conclusion, then it does not have
   two universal premises (existential fallacy).

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<u>Premises As Stated</u>   <u>Purported Conclusion</u>

<u>Relation of premises to conclusion</u>:

Exist   Hypo

___	___	Validity
___	___	Superfluity
___	___	Subcontrariety
___	___	Irrelevance
___	___	Insufficiency
___	___	Contrariety
___	___	Contradiction

<u>Text</u>:

Major premise: _Some P are not M_

Minor premise: _Some M are not S_

Conclusion: _Some S are P_

<u>Distribution</u>:   Major   Minor   Conclusion

S   P   M   S   P   M   S   P

$\bigcirc$ / //// , $\bigcirc$ / //// , $\bigcirc$ $\bigcirc$
                        /   .O

<u>Rules</u>:

_/_ Middle term distributed in at least one premise (undistributed middle).

_—_ If major term is distributed in the conclusion, it is distributed in the premise (illicit major).

_—_ If minor term is distributed in the conclusion, it is distributed in the premise (illicit minor).

$\bigcirc$ The syllogism has no negative premises, or only one, but not two. (exclusive premises).

$\bigcirc$ If one premise is negative, then the conclusion is negative (affirmative conclusion from negative premises).

_—_ If the conclusion is negative, then one premise must be negative (negative premises).

_/_ If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).
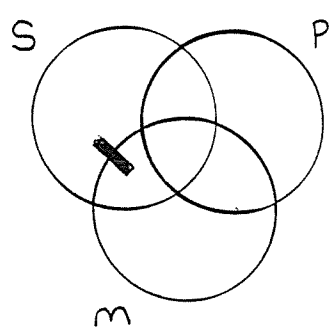
4/26/90   **Format (c) 1989 Mark Andrews**

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Premises As Stated   **Purported Conclusion**

Relation of premises to conclusion:

Exist   Hypo

___	___Validity
___	___Superfluity
___	___Subcontrariety
___	___Irrelevance
___	___Insufficiency
___	___Contrariety
___	___Contradiction

Text:

Major premise: _Some M are not P_

Minor premise: _Some S are not M_

Conclusion: _Some S are not P_

Distribution: Major   Minor   Conclusion

S   P   M   S   P   M   S   P

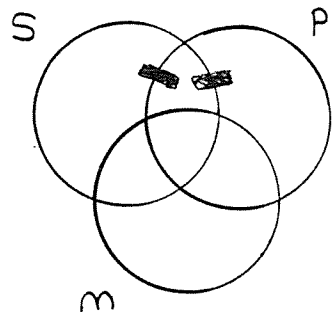○ | *̶*̶/ ○ | *̶*̶/ ○ |
        O   1

Rules:

_/_ Middle term distributed in at least one premise (undistributed middle).

_/_ If major term is distributed in the conclusion, it is distributed in the premise (illicit major).

_−_ If minor term is distributed in the conclusion, it is distributed in the premise (illicit minor).

_○_ The syllogism has no negative premises, or only one, but not two. (exclusive premises).

_/_ If one premise is negative, then the conclusion is negative (affirmative conclusion from negative premises).

_/_ If the conclusion is negative, then one premise must be negative (negative premises).

_/_ If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).
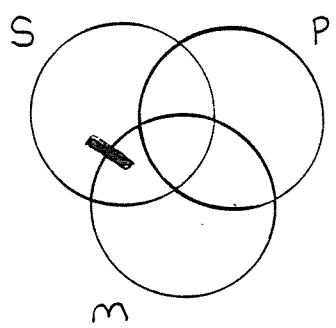
4/26/91   11/22/90   **Format (c) 1989 Mark Andrews**

Premises As Stated   Purported Conclusion

Relation of premises to conclusion:

Exist   Hypo

Exist	Hypo	
__	____	Validity
__	____	Superfluity
__	____	Subcontrariety
__	____	Irrelevance
__	____	Insufficiency
__	____	Contrariety
__	____	Contradiction

Text:

Major premise: _Some P are not M_

Minor premise: _Some S are not M_
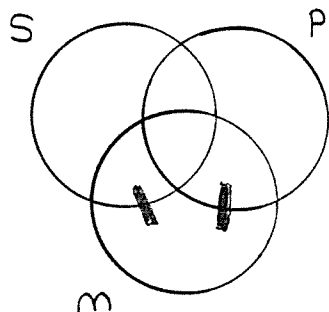
Conclusion: _Some S are not P_

Distribution: Major   Minor   Conclusion

S   P   M   S   P   M   S   P

○   i   ∅∅ ,   ○   i   ∅∅ ,   ○   ∅∅
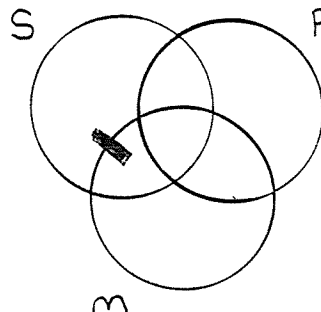
)   (/

Rules:

_/_ Middle term distributed in at least one premise (undistributed middle).

_○_ If major term is distributed in the conclusion, it is distributed in the premise (illicit major).

_−_ If minor term is distributed in the conclusion, it is distributed in the premise (illicit minor).

_○_ The syllogism has no negative premises, or only one, but not two. (exclusive premises).

_/_ If one premise is negative, then the conclusion is negative (affirmative conclusion from negative premises).

_/_ If the conclusion is negative, then one premise must be negative (negative premises).

_/_ If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).

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Premises As Stated   ### Purported Conclusion

Relation of premises to conclusion:

Exist   Hypo

Exist	Hypo	
__	__	Validity
__	__	Superfluity
__	__	Subcontrariety
__	__	Irrelevance
__	__	Insufficiency
__	__	Contrariety
__	__	Contradiction

Text:

Major premise: _Some M are not P_

Minor premise: _Some M are not S_

Conclusion: _Some S are not P_

Distribution: Major   Minor   Conclusion

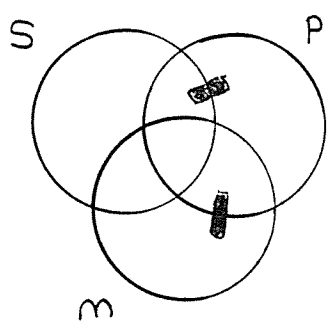|	S	P	M	S	P	M	S	P
	○	I	∦ /	○	I	∦ /	○	I
			○			○		

Rules:

○ Middle term distributed in at least one premise (undistributed middle).

/ If major term is distributed in the conclusion, it is distributed in the premise (illicit major).

— If minor term is distributed in the conclusion, it is distributed in the premise (illicit minor).

○ The syllogism has no negative premises, or only one, but not two. (exclusive premises).

/ If one premise is negative, then the conclusion is negative (affirmative conclusion from negative premises).

/ If the conclusion is negative, then one premise must be negative (negative premises).

/ If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).
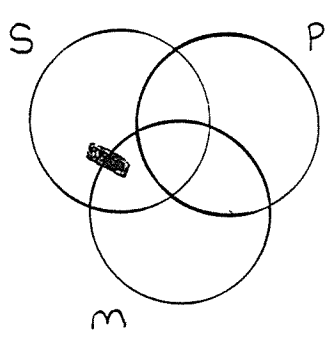
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Premises As Stated   ## Purported Conclusion

Relation of premises to conclusion:

Exist   Hypo

___	___	Validity
___	___	Superfluity
___	___	Subcontrariety
___	___	Irrelevance
___	___	Insufficiency
___	___	Contrariety
___	___	Contradiction

Text:

Major premise: _Some P are not M_

Minor premise: _Some M are not S_

Conclusion: _Some S are not P_

Distribution: Major   Minor   Conclusion

S	P	M	S	P	M	S	P
◯	l	M̶ ,	◯	l	⧸⧸ ,	◯	l
		l			◯		

Rules:

_l_ Middle term distributed in at least one premise (undistributed middle).

_◯_ If major term is distributed in the conclusion, it is distributed in the premise (illicit major).

_–_ If minor term is distributed in the conclusion, it is distributed in the premise (illicit minor).

_◯_ The syllogism has no negative premises, or only one, but not two. (exclusive premises).

_l_ If one premise is negative, then the conclusion is negative (affirmative conclusion from negative premises).

_l_ If the conclusion is negative, then one premise must be negative (negative premises).

_l_ If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).

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11/22/90 The End!