# The Syllogisms Diagrammed

Forms in this document:

OOA

OOE

001

000

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.

<u>Superfluity</u>. The premises prove more than the conclusion states.

<u>Subcontariety</u>. The premises and conclusion can be true together, but they cannot be false together.

<u>Irrelevance</u>. The content of the premises is unrelated to the conclusion.

<u>Insufficiency</u>. The premises lack sufficient information to show the truth of the conclusion.

<u>Contrariety</u>. The premises and conclusion can be false together, but they cannot be true together.

<u>Contradiction</u>. 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.

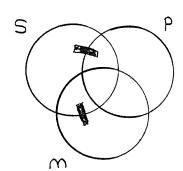
For the middle term in each premise, one means that the predicate is the middle term; zero means that the subject is the middle term.

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.

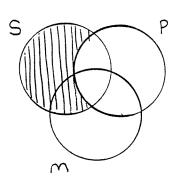
#### Rules

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.

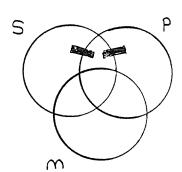


### Purported Conclusion

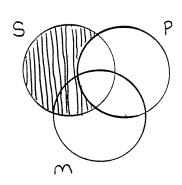


Format (c) 1989 Mark Andrews

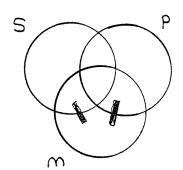
Exist	Нуро			
	37 to 19	<u>Text</u> :		
	Validity Superfluity	Major p	remise: <u>Some</u>	M are not P
	Subcontrariety Irrelevance	Minor p	remise: 50m	e 5 are not M
	InsufficiencyContrariety Contradiction		sion: All	
	<u>Distribution</u> :	Major	Minor	Conclusion
		S P M	S P M	S P
	•		$\begin{array}{cccc} S & P & M \\ \hline & & j & \frac{\partial}{\partial j} \end{array}$	<i>i</i> 0
	-			1 9
Dulas		0	1	
Rules	•			
/ /	Middle term distributed in	ı at least on	e premise	
	(undistributed middle).			
	If major tarm is distribute	ed in the co	nclusion, it is	distributed in the
	premise (illicit major).			
<u> </u>	lf minor term is distribut	ed in the co	nclusion, it is	distributed in the
$\overline{}$	premise (illicit minor).			
$\frac{\mathcal{O}}{\mathcal{O}}$	The syllogism has no neg	ative premis	es, or only or	ie, but not two.
$\bigcirc$	(exclusive premises).			
$\frac{\circ}{\circ}$	lf one premise is negative	e, then the	conclusion is	negative
-	(affirmative conclusion fro	om negative	premises).	
	If the conclusion is negat	ive, th <b>en</b> or	ne premise mu:	st be negative
-	premise (illicit major).  If minor term is distributed premise (illicit minor).  The syllogism has no negotive (exclusive premises).  If one premise is negative (affirmative conclusion from the conclusion is negative).  If the syllogism has a pain the syllogism has a pain the conclusion has a pain the syllogism has a pa			
				t does not have
•	two universal premises (e	xistential fa	llacy).	



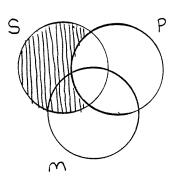
### Purported Conclusion



Exist	Нуро		
	ValiditySuperfluitySubcontrarietyIrrelevanceInsufficiencyContrarietyContradiction	Text:  Major premise: Some P are not	
	Irrelevance	Minor premise: Some S are not	<u> </u>
	Contrariety Contradiction	Conclusion: All 5 are P	<del></del>
	<u>Distribution</u> :	Major Minor Conclusion	
		S P M S P M S P	
Rules	:		
_ (	Middle term distributed (undistributed middle).	·	<b>د</b> ما د
		ted in the conclusion, it is distributed in	
$\frac{2}{2}$	f minor term is distrib	ated in the conclusion, it is distributed in gative premises, or only one, but not two	the
${\circ}$	The syllogism has no ne	gative premises, or only one, but not two	
	(exclusive premises). If one premise is negati	ye, then the conclusion is negative from negative premises).	
	it the conclusion is neg	rom negative premises). ative, then one premise must be negative	
	(negative premises). If the syllogism has a p two universal premises	articular conclusion, then it does not have	



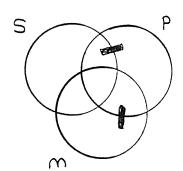
### Purported Conclusion



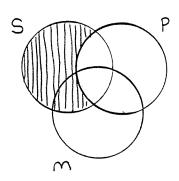
4/26/97 Format (c) 1989 Mark Andrews

======================================			Some M are not P Some M ore not S All S are P
	<u>Distribution</u> :	Major Minor	Conclusion
Rules		0 1 4, 0 1	
<u>-</u>   0 0 1 -	premise (illicit major).	ted in the conclusion, ted in the conclusion, gative premises, or or e, then the conclusion negative premises tive, then one premises articular conclusion, t	it is distributed in the it is distributed in the ally one, but not two.

## <u>Premises As Stated</u>

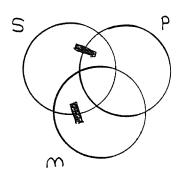


## Purported Conclusion

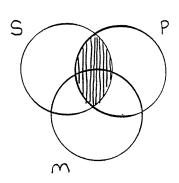


Exist	Нуро	Tout
	ValiditySuperfluitySubcontrarietyIrrelevanceInsufficiencyContrarietyContradiction	Major premise: Some Pare not M  Minor premise: Some Mare not S
		Conclusion: All S are P
	<u>Distribution</u> :	Major Minor Conclusion
		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
<del></del>	Middle term distributed (undistributed middle). If major term is distributed premise (illicit major).	in at least one premise  Ited in the conclusion, it is distributed in the  Ited in the conclusion, it is distributed in the  Ited in the conclusion, it is distributed in the  Itegative premises, or only one, but not two.  Iterative premises, or only one, but n
		Format (c) 1989 Mark Andrews

$\bigcirc$	0	E
		1



### Purported Conclusion



### Relation of premises to conclusion:

Exist	Нуро

 validity
 Superfluity
Subcontrariet
 Irrelevance
 Insufficiency
 Contrariety
 Contradiction

### Text:

Major

Text.					_
Major premise:	Some	$\sim$	316	ton	<u>P</u>
Minor premise:					
Conclusion:					
		·····			

Conclusion

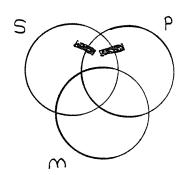
### **Distribution**:

	М				
$\overline{\bigcirc}$	 <u>Ay</u> /	0	 <b>Ø</b> /	1	<u> </u>
	0				

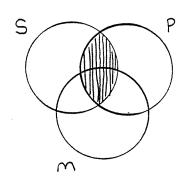
Minor

### Rules:

	Middle term distributed in at least one premise
	(undistributed middle).  If major term is distributed in the conclusion, it is distributed in the
<u>O</u>	premise (illicit major).  If minor term is distributed in the conclusion, it is distributed in the
0	premise (illicit minor). The syllogism has no negative premises, or only one, but not two.
1	(exclusive premises).  If one premise is negative, then the conclusion is negative
1	(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).

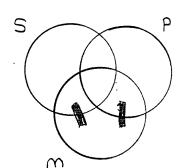


### Purported Conclusion

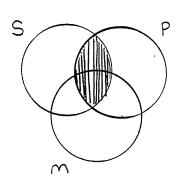


4/16/97 Format (c) 1989 Mark Andrews

	Hypo ValiditySuperfluitySubcontrarietyIrrelevanceInsufficiencyContrarietyContradiction	Text:  Major premise: Some Pare  Minor premise: Some Sare  Conclusion: No Sare	re not M
	<u>Distribution</u> :	Major Minor Conclu	sion
0 P P T C I	remise (illicit major).  f minor term is distributeremise (illicit minor).  The syllogism has no new exclusive premises).  f one premise is negative	S P M S P M S P  O 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	uted in the uted in the not two.
	negative premises). f the syllogism has a pa wo universal premises (	rticular conclusion, then it does rexistential fallacy).	not have



## Purported Conclusion

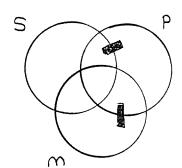


## Relation of premises to conclusion:

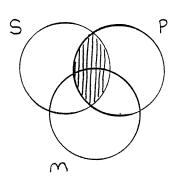
Exist	t Нуро			
	N / 11 111	<u>Text:</u>		
	Validity Superfluity	Major	premise: <u>Som</u>	e Mare not P
	SubcontrarietyIrrelevance	Minor	premise: 500	me Mare not S
	Insufficiency Contrariety Contradiction	Conclu	ision: No	S are P
	<u>Distribution</u> :	Major	Minor	Conclusion
		S P M	S P M	S P
			1 0 1 1/1	/ 1 1
Rules	<u>s</u> :	0	6	
0	Middle term distributed	in at least o	ne premise	
1	(undistributed middle).			
	If major term is distribu premise (illicit major).	ited in the c	onclusion, it is	s distributed in the
l	premise (illicit major).  If minor term is distributed by the premise (illicit minor).	ited in the c	onclusion it is	e distributed in the
$\overline{}$	premise (illicit minor).	red in the c	onclusion, it is	s distributed in the
$\underline{\cup}$	premise (illicit minor). The syllogism has no ne	gative premi	ses, or only of	ne, but not two.
ł	(exclusive premises).  If one premise is negative.		•	,
	If one premise is negative	ve, then the	conclusion is	negative
- 1	(affirmative conclusion f If the conclusion is neg	rom negative	premises).	
	If the conclusion is negative premises)	ative, th <b>en</b> o	ne premise mu	st be negative
_	(negative premises). If the syllogism has a p	articular con	clusion then	it does not have
	two universal premises (	(existential f	allacy).	it does not have

4/16/91

Format (c) 1989 Mark Andrews



### Purported Conclusion

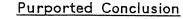


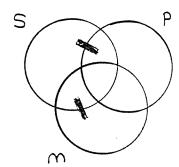
### Relation of premises to conclusion:

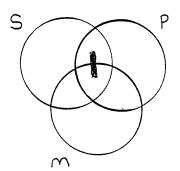
Exist	Нуро					
	Validity	<u>Text</u> :		2		
	Superfluity	Major	premise: <u>5 ° m</u> e	Pare not M		
	SubcontrarietyIrrelevance	Minor	premise: Same	2 ten ore M		
Contrarie	Insufficiency Contrariety Contradiction	Conclu	sion: No	S are P		
	<u>Distribution</u> :	Major	Minor	Conclusion		
		S P M	S P M	S P		
			S P M / <u>O J #</u> /	· <u>1</u> <u>1</u>		
Rules	<u>:</u> :	1	0			
	Middle term distributed	in at least or	ne premise			
0	(undistributed middle). If major term is distribu	stad in the co	analusian it is	diatributed in the		
	premise (illicit major).  If minor term is distribute premise (illicit minor).	ited in the c	onclusion, it is	distributed in the		
$\bigcirc$	premise (illicit minor). The syllogism has no ne	antiva nnomi	naa on only on	a but not two		
	(exclusive premises).	gative premi	ses, or only on	ie, but not two.		
	(exclusive premises).  If one premise is negative, then the conclusion is negative					
1	(aftirmative conclusion from negative premises).  If the conclusion is negative, then one premise must be negative					
		ative, th <b>en</b> o	ne premise mus	st be negative		
	(negative premises) If the syllogism has a particular conclusion, then it does not have _ two universal premises (existential fallacy).					

4/26/97 Format (c) 1989 Mark Andrews

0	0	I	
	,	1	_







#### Relation of premises to conclusion:

St	пуро			

Contrariety

Contradiction

 Validity
Superfluity
 Subcontrariety
Irrelevance
 Insufficiency

Text	:

Major premise:	Some	M	ayq	n-t	P
Minor premise:	Some	S	۹۲۹	ton	$\sim$
Conclusion:	Some	S	<b>a</b> Y१	P	

Distribution:

Major

Minor

Conclusion

_			_	-	M	_	Р
$\bigcirc$	1	19 /	$\bigcirc$	j	Ø/	$\bigcirc$	$\bigcirc$
		0			)		

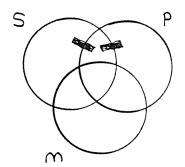
#### Rules:

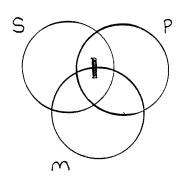
1	Middle	term	distributed	in	at	least	one	premise
	(undis	tribut	(albbim bar					

- . 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).

4/26/97 Format (c) 1989
11/22/90 Format (c) 1989 Mark Andrews

## Purported Conclusion

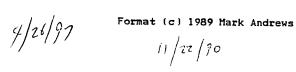


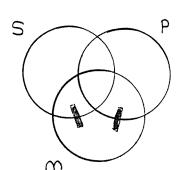


Exist	Нуро							
	N/ 11 114	Text:						
	Validity Superfluity	Major	premise:	Some	P	<b>4</b> /1	ton	$\wedge \wedge$
	SubcontrarietyIrrelevance	Minor	premise:	Some	S	216	ton	$\sim$
	Insufficiency Contrariety	Conclu	ısion:	Some	5	are	P	
	Contradiction							

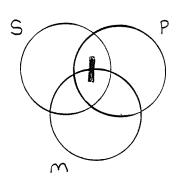
<u>Distribution</u> :	Major			Minor			Conclusion		
	S	P	M Ka	S	•	M Kara	S	P	
	$\overline{\bigcirc}$		. <u>49</u> /	<u> </u>		· <b>25</b> /	<u> </u>	$\frac{\mathcal{O}}{\mathcal{O}}$	
			1			1			

Rules	<u>s</u> :
<u> </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). 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).
	(existential failusy).





### Purported Conclusion



### Relation of premises to conclusion:

Exist	Hypo
-------	------

 Validity
 Superfluity
Subcontrariety
 Irrelevance
Insufficiency
 Contrariety
 Contradiction

#### <u>Text</u>:

Major

Text.					
Major premise:	Some	$\sim$	218	ten	P
Minor premise:	Sone	M	<b>७</b> ४९	her	S
Conclusion:	Some	S 9	<b>۲</b> ٩	P	

Conclusion

Di					

S	Р	М	S	Р	M	S	Р
$\bigcirc$	İ	10 /	0	1	4/	0	$\bigcirc$
					$\overline{\rho}$		

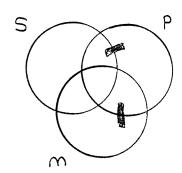
Minor

#### Rules:

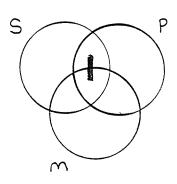
$\overline{}$	Middle term distributed in at least one premise
_	(undistributed middle).
	If major term is distributed in the conclusion, it is distributed in the
_	premise (illicit major).
	If minor term is distributed in the conclusion, it is distributed in the
_	numina (illinit minau)
$\stackrel{\smile}{\sim}$	The syllogism has no negative premises, or only one, but not two.  [exclusive premises]
$\bigcirc$	(exclusive premises).
$\underline{\smile}$	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).

4/26/97

Format (c) 1989 Mark Andrews



### Purported Conclusion



### Relation of premises to conclusion:

Exist	Нуро
	ValiditySuperfluitySubcontrarietyIrrelevanceInsufficiencyContrariety Contradiction

т	_		_	_
	_	Y	т	•

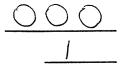
Major premise:	Some	P are not M
		M are not S
Conclusion:	Some	S are P

<u>Distribution</u> :	Major			Minor			Conclusion		
	S	Р	М	S	Р	М	S	Р	
	0	1	14/	0	İ	Ny 1	0	$\bigcirc$	
			<del></del>			0			

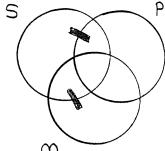
Ru	les

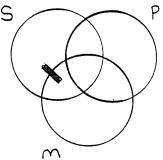
	Middle term distributed in at least one premise
	(undistributed middle).
	If major term is distributed in the conclusion, it is distributed in the
_	premise (illicit major).
	If minor term is distributed in the conclusion, it is distributed in the
$\bigcirc$	premise (illicit minor).
$\underline{\bigcirc}$	The syllogism has no negative premises, or only one, but not two.
$\bigcirc$	(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
1	(negative premises).
	If the syllogism has a particular conclusion, then it does not have
	two universal premises (existential fallacy).

4/16/90 Format (c) 1989 Mark Andrews









### Relation of premises to conclusion:

Exist Hypo Text:

 Validity
 Superfluity
Subcontrariety
 Irrelevance
 Insufficiency
 Contrariety
 Contradiction

Major premise: Some M are not P Minor premise: 5 one 5 are not M Conclusion: Some S are not

<u>Distribution</u> :	Major			Minor			Conclusion		
	S	Р	М	S	Р	М	S	Р	
	0	1	14/	0		1	0		
			0			1			

Rules	•

	Middle	term	distributed	in	at	least	one	premise
1	(undis	tribut	ed 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).

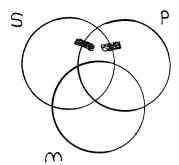
If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).

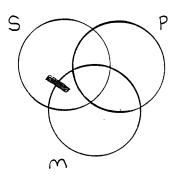
4/26/91 Format (c) 1989 Mark Andrews
11/22/90

000	
2	

-	•			$\sim$ .	t
Ρ	remis	29	As	Stated	1

### Purported Conclusion





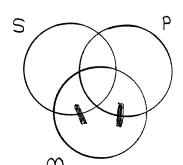
#### Relation of premises to conclusion:

Exist	Нуро	Text:			
	Validity Superfluity	Major premise:	Some	Pen sys 9	M
	Subcontrariety Irrelevance	Minor premise:			
	Insufficiency Contrariety	Conclusion:	Some	S are not	P
	Contradiction				
	<u>Distribution</u> :	Major Min	or	Conclusion	

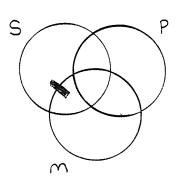
<u>n</u> :	Major			M	inor	Conclusion			
	S	Р	М	S	Р	M	S	Р	
	0	<u> </u>	10 / M	<u>0</u>	<u> </u>	1	<u> </u>		
			)			1		/	

Rule	<u>:</u>
1	Middle term distributed in at least one premise
$\bigcirc$	(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
0	premise (illicit minor). The syllogism has no negative premises, or only one, but not two.
1	(exclusive premises).  If one premise is negative, then the conclusion is negative
1	(affirmative conclusion from negative premises).  If the conclusion is negative, then one premise must be negative
1	(negative premises).  If the syllogism has a particular conclusion, then it does not have two universal premises (existential fallacy).

4/16/97 Format (c) 1989 Mark Andrews



### Purported Conclusion



Minor

### Relation of premises to conclusion:

 Validity
 Superfluity
 Subcontrariety

Exist Hypo

 Irrelevance
Insufficiency
 Contrariety
Contradiction

#### Text:

Major

10/10					_
Major premise:	Some	/ <sup>v</sup> )	918	Fon	<u>P</u>
Minor premise:					
Conclusion:	_				

Conclusion

11		+	~ :	h		+,	$\sim$	~	٠
D	13	L		u	u	LI	u	11	٠

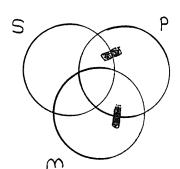
S	Р	М	S	P
<u></u>		1	0	<u> </u>
		<u> </u>		

#### Rules:

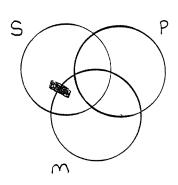
$\simeq$	Middle term distributed in at least one premise
	(undistributed middle).
	If major term is distributed in the conclusion, it is distributed in the
	premise (illicit major).
	If minor term is distributed in the conclusion, it is distributed in the
$\bigcirc$	premise (illicit minor).
$\underline{\smile}$	The syllogism has no negative premises, or only one, but not two.
1	(exclusive premises).
	If one premise is negative, then the conclusion is negative
1	(affirmative conclusion from negative premises).
	If the conclusion is negative, then one premise must be negative
1	(negative premises).
	If the syllogism has a particular conclusion, then it does not have
	two universal premises (existential fallacy).

4/26/97

Format (c) 1989 Mark Andrews  $\frac{1}{2}$ 



### Purported Conclusion



### Relation of premises to conclusion:

Exist	Нуро						
	•	<u>Text</u> :					
	Validity Superfluity	Major premise:_	Some	P	are	ten	$\mathcal{M}$
	Subcontrariety Irrelevance	Minor premise:					
	Insufficiency	Conclusion:					
	<pre>ContrarietyContradiction</pre>	Conclusion:				,,- <u> </u>	,
	Distriction	Maine Mina		C I	:	_	

<u>Distribution</u> :	Major		Minor			Conc	Conclusion		
	S	P		_	Р	М	S	Р	
	$\bigcirc$	1	<b>M</b> /	0	1	1/2	0	<u></u>	
			1			0			

### Rules:

1	Middle term distributed in at least one premise
	(undistributed middle)
$\underline{\bigcirc}$	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
$\bigcirc$	premise (illicit minor).
$\overline{}$	The syllogism has no negative premises, or only one, but not two.
- 1	(exclusive premises).
	If one premise is negative, then the conclusion is negative
1	(affirmative conclusion from negative premises).
	If the conclusion is negative, then one premise must be negative
1	(negative premises).
	If the syllogism has a particular conclusion, then it does not have
	two universal premises (existential fallacy).

4/16/97 Format (c) 1989 Mark Andrews

11/27/90 The End!