

## Aristotle's Square of Opposition in the *De Interpretatione*

### Quantities and Qualities

	Affirmation	Denial
Universal	Every Every X is Y	No No X is Y
Limited	Some Some X is Y	Some ... not Not every  Some X is not Y Not every X is Y

### Contradictories and Contraries

<i>Every X is Y</i> is the contradictory of <i>Not every X is Y</i> or <i>Some X is not Y</i>	<i>No X is Y</i> is the contradictory of <i>Some X is Y</i>
<i>Every X is Y</i> is the contrary of <i>No X is Y</i>	<i>Some X is Y</i> is the “subcontrary” of <i>Some X is not Y</i> or <i>Not every X is Y</i>

## Aristotle's Categorical Logic (“Syllogistic”) in the *Prior Analytics*

	Affirmation “Affirmo”	Denial “Nego”
Universal	Every (a)  X belongs to every Y XaY	No (e)  X belongs to no Y XeY
Limited	Some (i)  X belongs to some Y XiY	Some ... not (o) Not every (o)  X belongs not to every Y X belongs not to some Y XoY

### Figures (*Schēmata*)

First	Second	Third
<p>(Middle term is subject of first premise and subject of the second)</p> <p>P1. X belongs to Y P2. Y belongs to Z C. X belongs to Z</p> <p>P1 = Major (predicate is predicate of the conclusion) P2 = Minor</p>	<p>(Middle term is predicate of both premises)</p> <p>P1. Y belongs to X P2. Y belongs to Z C. X belongs to Z</p>	<p>(Middle term is subject of both premises)</p> <p>P1. X belongs to Y P2. Z belongs to Y C. X belongs to Z.</p>

#### Valid Syllogisms of the First Figure

“Barbara”	“Celarent”	“Darii”	“Ferio”
<p>Major: XaY Minor: YaZ C. XaZ</p>	<p>Major: XeY Minor: YaZ C. XeZ</p>	<p>Major: XaY Minor: YiZ C. XiZ</p>	<p>Major: XeY Minor: YiZ C. XoZ</p>

#### Valid Syllogisms of the Second Figure

Camestres	Cesare	Festino	Baroco
<p>Major: YaX Minor: YeZ C. XeZ</p>	<p>Major: YeX Minor: YaZ C. XeZ</p>	<p>Major: YeX Minor: YiZ C. XoZ</p>	<p>Major: YaX Minor: YoZ C. XoZ</p>

#### Valid Syllogisms of the Third Figure

<p><b>Darapti</b></p> <p>Major: XaY Minor: ZaY C. XiZ</p>	<p><b>Felapton</b></p> <p>Major: XeY Minor: ZaY C. XoZ</p>	<p><b>Datisi</b></p> <p>Major: XaY Minor: ZiY C. XiZ</p>	<p><b>Disamis</b></p> <p>Major: XiY Minor: ZaY C. XiZ</p>
<p><b>Bocardo</b></p> <p>Major: XoY Minor: ZaY C. XoZ</p>	<p><b>Ferison</b></p> <p>Major: XeY Minor: ZiY C. XoZ</p>		

### Conversion Rules

#1. $YeX \rightarrow XeY$	#2. $YiX \rightarrow XiY$	#3. $YaX \rightarrow XiY$
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### Sample Deductions

<p>To prove <i>Camestres</i></p> <p>P1. <math>YaX</math>          P2. <math>YeZ</math>          C1, P3. <math>ZeY</math> (P2, conversion rule #1)          C2, P4. <math>ZeX</math> (P3 + P1, <i>Celarent</i>)          C3. <math>XeZ</math> (P4, conversion rule #1;                <i>Camestres</i>)</p>	<p>To prove <i>Baroco</i></p> <p>P1. <math>YaX</math>          P2. <math>YoZ</math></p> <p>To prove <math>XoZ</math>, assume its contradictory,  <math>XaZ</math></p> <p>P3. <math>XaZ</math> (assumption)          C1, P4. <math>YaZ</math> (P1 + P3, <i>Barabara</i>)          C2. <math>XoZ</math> (P4 + P2, <i>reductio ad absurdum</i>)</p>
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