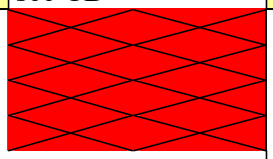
Intro Logic

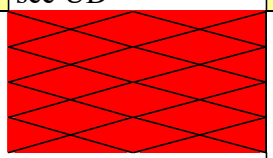
SENTENTIAL LOGIC

Rules of Derivation

&I	&O	~&O	&D
$\mathcal{A}$ $\mathcal{B}$ / $\mathcal{A}\,\&\,\mathcal{B}$; $\mathcal{A}$ $\mathcal{B}$ / $\mathcal{B}\,\&\,\mathcal{A}$	$\mathcal{A}\,\&\,\mathcal{B}$ / $\mathcal{A}$; $\mathcal{A}\,\&\,\mathcal{B}$ / $\mathcal{B}$	$\sim(\mathcal{A}\,\&\,\mathcal{B})$ / $\mathcal{A}\rightarrow\sim\mathcal{B}$	~~SHOW~~: $\mathcal{A}\&\mathcal{B}$; ~~SHOW~~: $\mathcal{A}$; ~~SHOW~~: $\mathcal{B}$
∨I	**∨O**	**~∨O**	**∨D**
$\mathcal{A}$ / $\mathcal{A}\vee\mathcal{B}$; $\mathcal{A}$ / $\mathcal{B}\vee\mathcal{A}$	$\mathcal{A}\vee\mathcal{B}$ $\sim\mathcal{A}$ / $\mathcal{B}$; $\mathcal{A}\vee\mathcal{B}$ $\sim\mathcal{B}$ / $\mathcal{A}$	$\sim(\mathcal{A}\vee\mathcal{B})$ / $\sim\mathcal{A}$ $\sim\mathcal{B}$	(ID) ~~SHOW~~: $\mathcal{A}\vee\mathcal{B}$; $\sim(\mathcal{A}\vee\mathcal{B})$; ~~SHOW~~: ※
↔I	**↔O**	**~↔O**	**↔D**
$\mathcal{A}\rightarrow\mathcal{B}$ $\mathcal{B}\rightarrow\mathcal{A}$ / $\mathcal{A}\leftrightarrow\mathcal{B}$; $\mathcal{A}\rightarrow\mathcal{B}$ $\mathcal{B}\rightarrow\mathcal{A}$ / $\mathcal{B}\leftrightarrow\mathcal{A}$	$\mathcal{A}\leftrightarrow\mathcal{B}$ / $\mathcal{A}\rightarrow\mathcal{B}$; $\mathcal{A}\leftrightarrow\mathcal{B}$ / $\mathcal{B}\rightarrow\mathcal{A}$	$\sim(\mathcal{A}\leftrightarrow\mathcal{B})$ / $\sim\mathcal{A}\leftrightarrow\mathcal{B}$	~~SHOW~~: $\mathcal{A}\leftrightarrow\mathcal{B}$; ~~SHOW~~: $\mathcal{A}\rightarrow\mathcal{B}$; ~~SHOW~~: $\mathcal{B}\rightarrow\mathcal{A}$
→I see CD	**→O**	**~→O**	**CD**
	$\mathcal{A}\rightarrow C$ $\mathcal{A}$ / C ; $\mathcal{A}\rightarrow C$ $\sim C$ / $\sim\mathcal{A}$	$\sim(\mathcal{A}\rightarrow C)$ / $\mathcal{A}\,\&\sim C$	~~SHOW~~: $\mathcal{A}\rightarrow C$; $\mathcal{A}$; ~~SHOW~~: C
DN	**DN**	**Rep**	**~D**
$\mathcal{A}$ / $\sim\sim\mathcal{A}$	$\sim\sim\mathcal{A}$ / $\mathcal{A}$	$\mathcal{A}$ / $\mathcal{A}$	~~SHOW~~: $\sim\mathcal{A}$; $\mathcal{A}$; ~~SHOW~~: ※
※I	**※O**	**DD**	**ID**
$\mathcal{A}$ $\sim\mathcal{A}$ / ※	※ / $\mathcal{A}$	~~SHOW~~: $\mathcal{A}$; $\mathcal{A}$	~~SHOW~~: $\mathcal{A}$; $\sim\mathcal{A}$; ~~SHOW~~: ※

PREDICATE LOGIC

In the following, ν is any variable; $\mathbb{F}[\nu]$ is any formula in which ν occurs free;
$\mathbb{F}$[**o**] results by substituting **o** for every free occurrence of ν, where **o** is any **old name**.
$\mathbb{F}$[**n**] results by substituting **n** for every free occurrence of ν, where **n** is any **new name**.
A name counts as **old** if it occurs in a line that is neither boxed nor cancelled;
otherwise it counts as **new**.

∀I see UD	∀O	~∀O	UD
	$\forall\nu\mathbb{F}[\nu]$ / $\mathbb{F}$[**o**] **old**	$\sim\forall\nu\Phi$ / $\exists\nu\sim\Phi$	**new** ~~SHOW~~: $\forall\nu\mathbb{F}[\nu]$; ~~SHOW~~: $\mathbb{F}$[**n**]
∃I	**∃O**	**~∃O**	**∃D** (ID)
$\mathbb{F}$[**o**] **old** / $\exists\nu\mathbb{F}[\nu]$	$\exists\nu\mathbb{F}[\nu]$ / $\mathbb{F}$[**n**] **new**	$\sim\exists\nu\Phi$ / $\forall\nu\sim\Phi$	~~SHOW~~: $\exists\nu\mathbb{F}[\nu]$; $\sim\exists\nu\mathbb{F}[\nu]$; ~~SHOW~~: ※