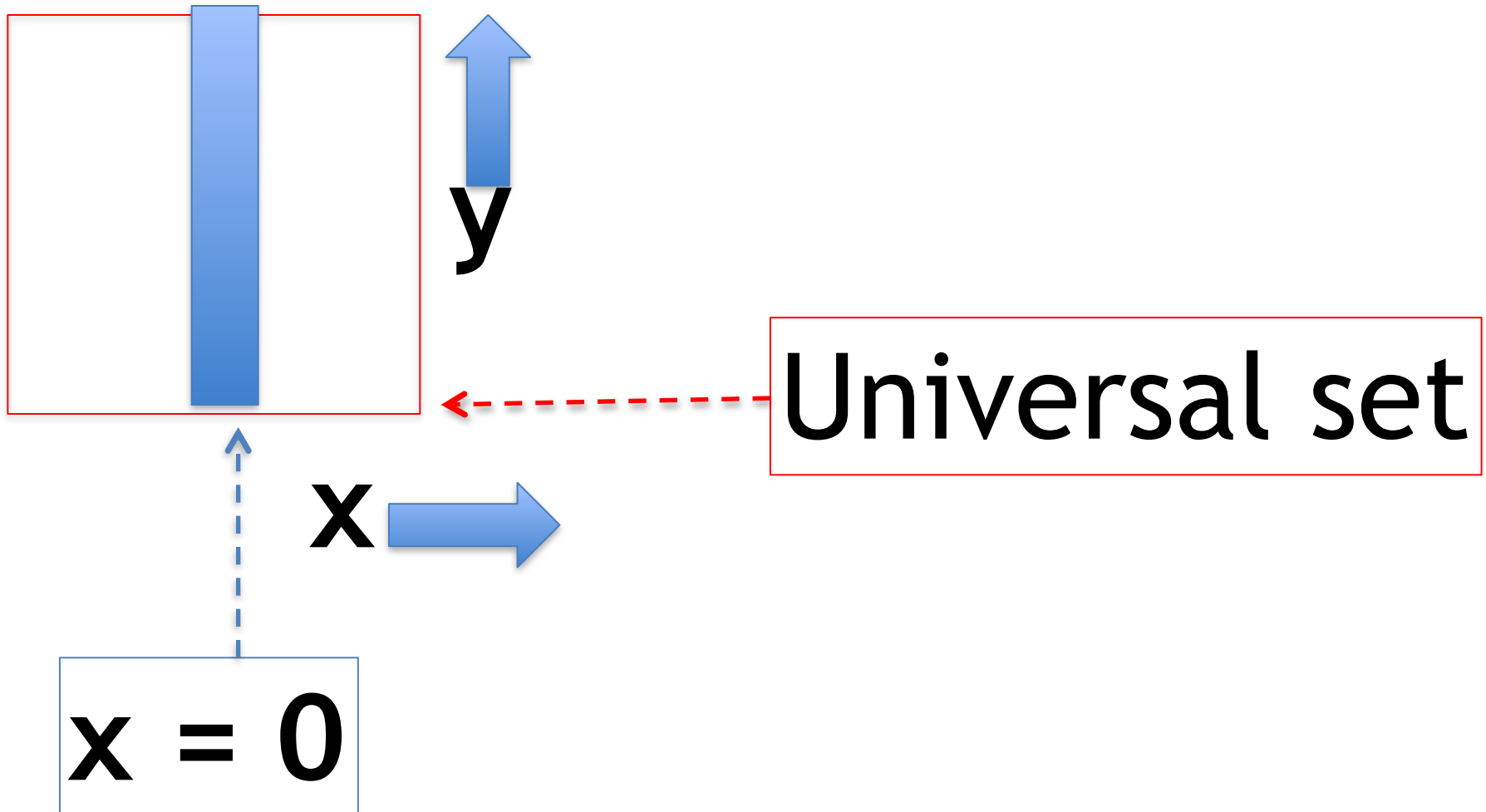


Extension of Predicate: $x = 0$



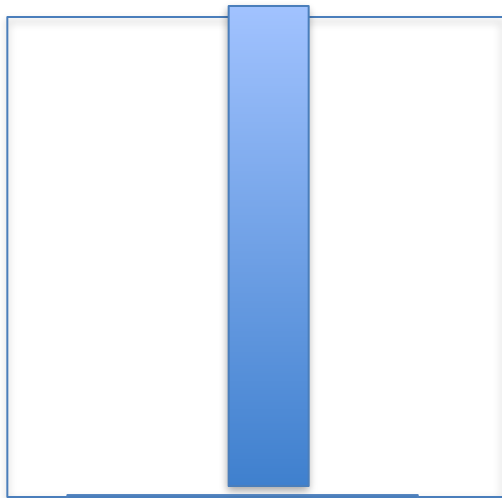
Extension of Predicate: $y = 0$



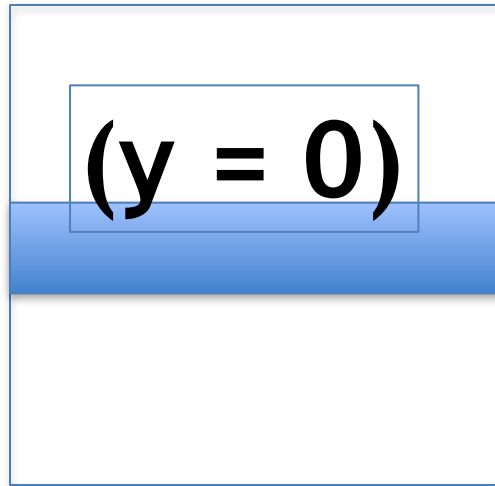
$$y = 0$$

Extension of Predicate:

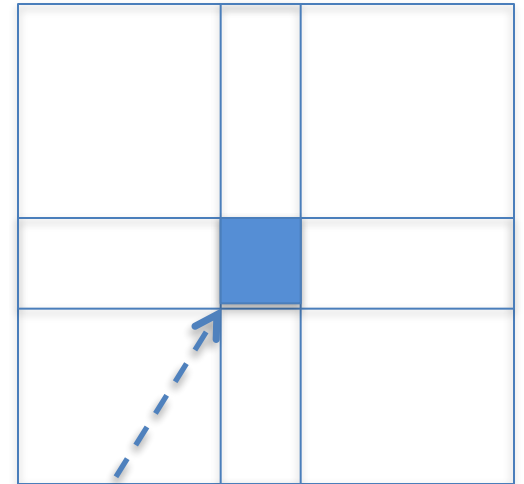
$(x=0) \text{ AND } (y=0)$



$(x = 0)$



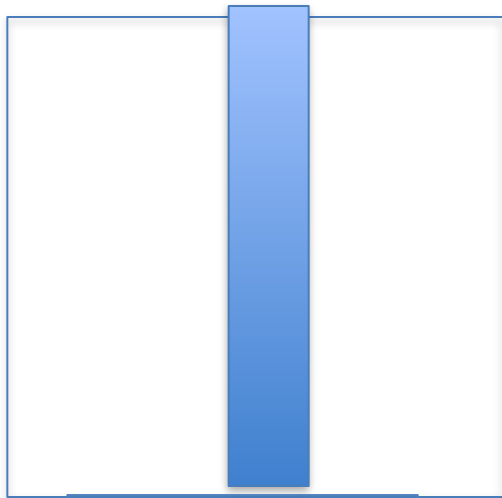
$(y = 0)$



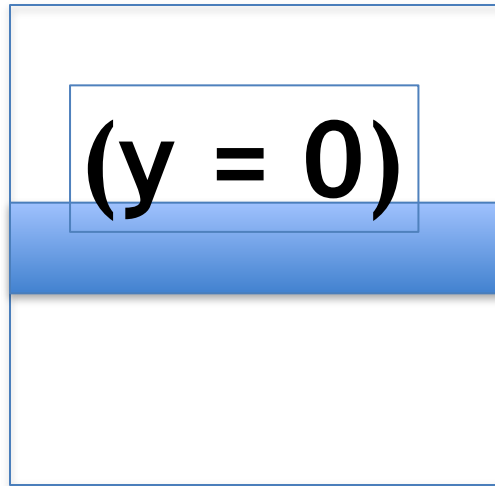
$(x = 0) \text{ AND } (y = 0)$

Extension of Predicate:

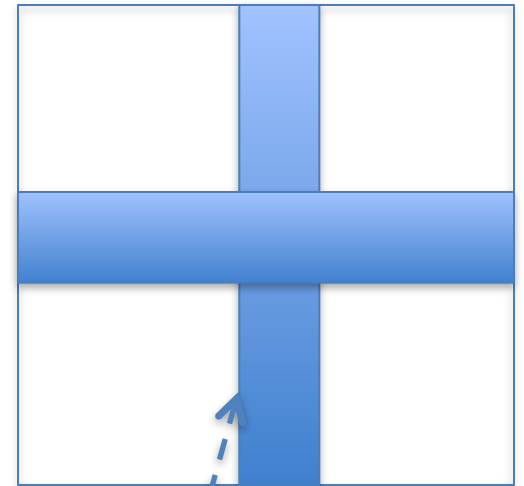
$$(x = 0) \text{ OR } (y = 0)$$



$$(x = 0)$$



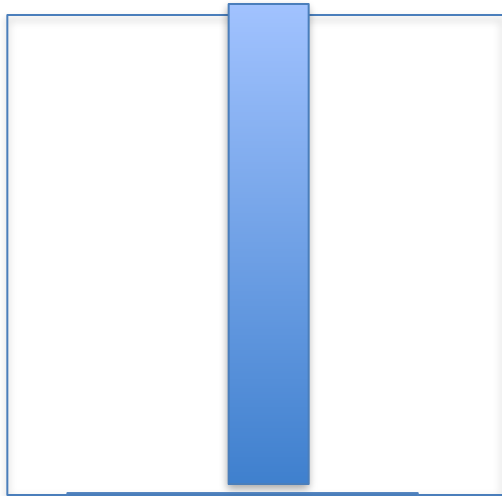
$$(y = 0)$$



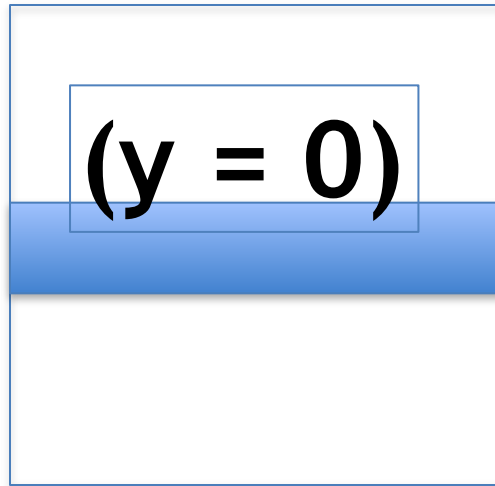
$$(x = 0) \text{ OR } (y = 0)$$

Extension of Predicate:

$$(x = 0) = (y = 0)$$



$$(x = 0)$$

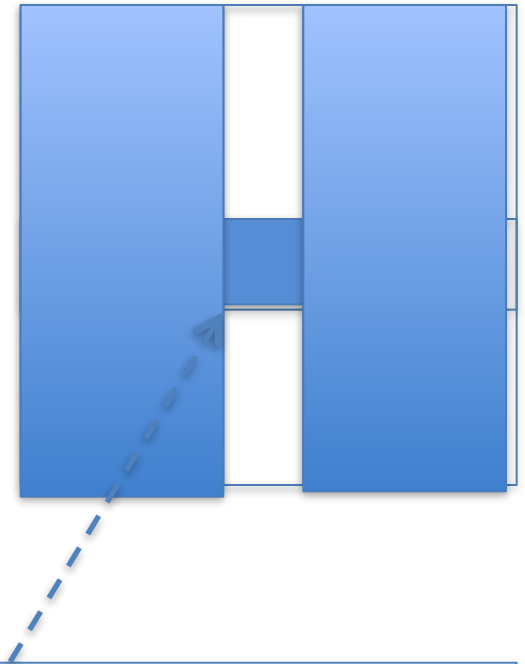
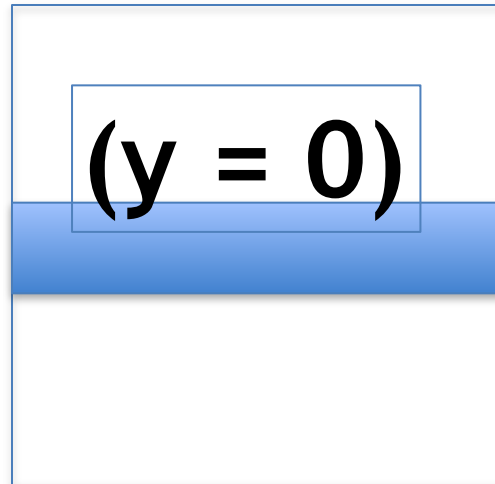
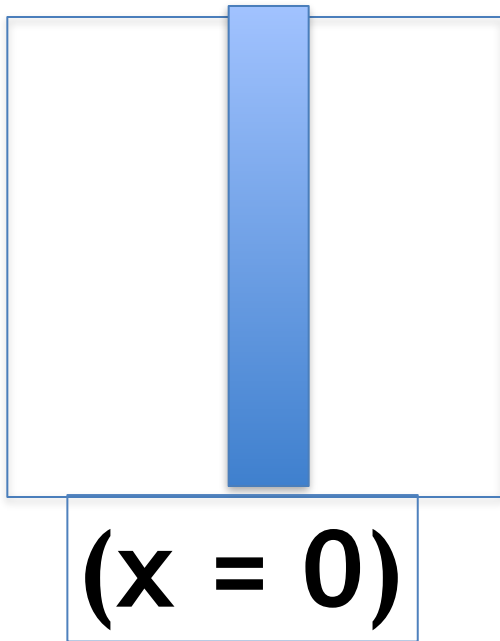


$$(y = 0)$$



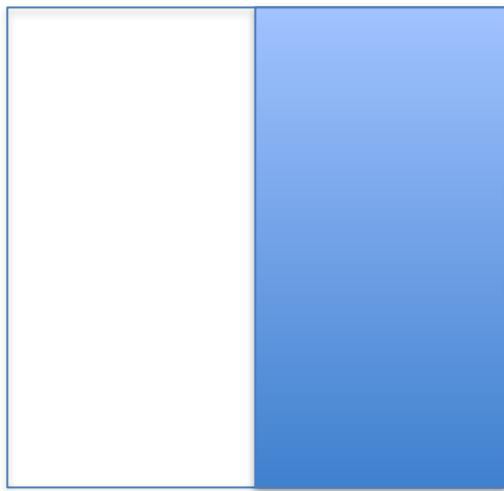
$$(x = 0) = (y = 0)$$

Extension of Predicate:
 $(x = 0) \text{ IMPLIES } (y = 0)$



$(x=0) \text{ IMPLIES } (y=0)$

Extension of $(x \geq 0) = \text{not}(x < 0)$
is the universal set



$$x \geq 0$$

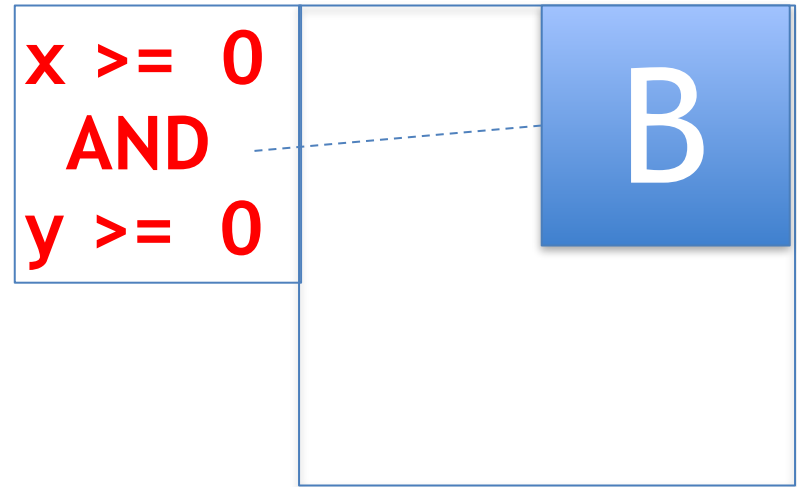
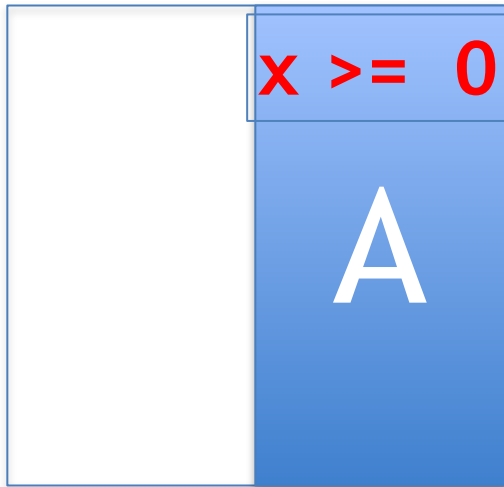


$$\text{not}(x < 0)$$



$$[(x \geq 0) = \text{not}(x < 0)]$$

Extension of
 $(x \geq 0) \text{ AND } (y \geq 0) \text{ IMPLIES } (x \geq 0)$
is the universal set



B is a subset of A.
 $[(x \geq 0) \text{ AND } (y \geq 0) \text{ IMPLIES } (x \geq 0)]$

In this course, we almost always use IMPLIES and = with square brackets. These formula hold universally.

Examples:

$$[(x > 1) \text{ IMPLIES } (x > 0)]$$

$$[(x > 1) = \text{NOT}(x \leq 1)]$$