Programming Paradigms: Logic Programming

Syntax and Semantics: additional examples

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Based on slides available at `https://potassco.org/teaching/` (CC-BY)

Additional Material

Example two

$$P = \{p \leftarrow \sim q,\ q \leftarrow \sim p\}$$

Example two

$$P = \{p \leftarrow \sim q,\ q \leftarrow \sim p\}$$

X		
$\{\quad\}$		
$\{p\quad\}$		
$\{\quad q\}$		
$\{p, q\}$		

Example two

$$P = \{p \leftarrow \sim q,\ q \leftarrow \sim p\}$$

X	P^X	$Cn(P^X)$
$\{\quad\}$	$p \leftarrow$ $q \leftarrow$	$\{p, q\}$
$\{p\quad\}$	$p \leftarrow$	$\{p\}$
$\{\quad q\}$	$q \leftarrow$	$\{q\}$
$\{p, q\}$		$\emptyset$

Example two

$$P = \{p \leftarrow \sim q,\ q \leftarrow \sim p\}$$

X	P^X	$Cn(P^X)$
$\{\ \}$	$p \leftarrow$ $q \leftarrow$	$\{p, q\}$ ✘
$\{p\ \}$	$p \leftarrow$	$\{p\}$
$\{\ q\}$	$q \leftarrow$	$\{q\}$
$\{p, q\}$		$\emptyset$

Example two

$$P = \{p \leftarrow \sim q,\ q \leftarrow \sim p\}$$

X	P^X	$Cn(P^X)$	
$\{\ \}$	$p \leftarrow$ $q \leftarrow$	$\{p, q\}$	✘
$\{p\ \}$	$p \leftarrow$	$\{p\}$	✔
$\{\ q\}$	$q \leftarrow$	$\{q\}$	
$\{p, q\}$		$\emptyset$	

Example two

$$P = \{p \leftarrow \sim q,\ q \leftarrow \sim p\}$$

X	P^X	$Cn(P^X)$	
$\{\ \}$	$p \leftarrow$ $q \leftarrow$	$\{p, q\}$	✘
$\{p\ \}$	$p \leftarrow$	$\{p\}$	✔
$\{\ q\}$	$q \leftarrow$	$\{q\}$	✔
$\{p, q\}$		$\emptyset$	

Example two

$$P = \{p \leftarrow \sim q,\ q \leftarrow \sim p\}$$

X	P^X	$Cn(P^X)$	
$\{\ \}$	$p \leftarrow$ $q \leftarrow$	$\{p, q\}$	✘
$\{p\ \}$	$p \leftarrow$	$\{p\}$	✔
$\{\ q\}$	$q \leftarrow$	$\{q\}$	✔
$\{p, q\}$		$\emptyset$	✘

Example three

$$P = \{p \leftarrow \sim p\}$$

Example three

$$P = \{p \leftarrow \sim p\}$$

X		
$\{\ \}$		
$\{p\}$		

Example three

$$P = \{p \leftarrow \sim p\}$$

X	P^X	$Cn(P^X)$
$\{\ \}$	$p \leftarrow$	$\{p\}$
$\{p\}$		$\emptyset$

Example three

$$P = \{p \leftarrow \sim p\}$$

X	P^X	$Cn(P^X)$	
$\{\ \}$	$p \leftarrow$	$\{p\}$	✘
$\{p\}$		$\emptyset$	

Example three

$$P = \{p \leftarrow \sim p\}$$

X	P^X	$Cn(P^X)$	
$\{\ \}$	$p \leftarrow$	$\{p\}$	✘
$\{p\}$		$\emptyset$	✘