

Ontylog Language¹

<i>Constructor</i>	<i>Syntax</i>	<i>Semantics</i>
<i>Concept name</i>	C	C^I (where $C^I \subseteq \Delta^I$)
Top	\top	Δ^I
Bottom	\perp	\emptyset
Conjunction	$C \sqcap D$	$C^I \cap D^I$
Disjunction	$C \sqcup D$	$C^I \cup D^I$
<i>Universal restriction</i>	$\forall R.C$	$\{x \mid \forall y : R^I(x,y) \rightarrow C^I(y)\}$
Existential restriction	$\exists R.C$	$\{x \mid \exists y : R^I(x,y) \wedge C^I(y)\}$
Modal restriction	$\diamond R.C$	$\{x \mid \text{Pr}(\exists y : R^I(x,y) \wedge C^I(y)) > 0\}$
Role name	R	R^I (where $R^I \subseteq \Delta^I \times \Delta^I$)

<i>Definitional or Axiomatic Constraint</i>	<i>Syntax</i>	<i>Semantic Constraint</i>
<i>Concept definition</i>	$C \doteq D$	$C^I \equiv D^I$
Concept subsumption axiom	$C \sqsubseteq D$	$C^I \subseteq D^I$
Role subsumption axiom	$R \sqsubseteq S$	$R^I \subseteq S^I$
Right identity axiom	$R \circ S \doteq R$	$(R \circ S)^I \equiv R^I$

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