# Semantic Web Rule Language

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# What is SWRL? (I)

**SWRL** is an acronym for Semantic Web Rule Language.

SWRL is intended to be the rule language of the Semantic Web.

SWRL is based on OWL: all rules are expressed in terms of OWL concepts (classes, properties, individuals, literals…).

SWRL is a combination of: OWL DL, OWL Lite, and RuleML.

SWRL extends OWL by means of including Horn-like rules.

# What is SWRL? (II)

**SWRL** rules describes:

Body (Antecedente) ⇨ Head (Consecuente)

Body and Head are composed by one or more atoms.

If Body is Empty, it implies true.

If Head is Empty, it implies that the Body is false.

Atoms can be: C(x), P(x,y), sameAs(x,y).

*Examples:*

Person(?p) ^ hasSibling(?p, ?s) ^ Man(?s) -> hasBrother(?p, ?s)

Person(*Fred*) ^ hasSibling(*Fred*, ?s) ^ Man(?s) -> hasBrother(*Fred*, ?s)

# SWRL: Syntax XML Example

*Example:*

hasParent (?x,?y) ^ hasBrother(?y, ?z) → hasUncle(?x, ?z)

```
<ruleml:imp>
    <ruleml:_rlab ruleml:href="#example1"/>
    <ruleml:_body>
        <swrlx:individualPropertyAtom swrlx:property="hasParent">
            <ruleml:var>x1</ruleml:var>
            <ruleml:var>x2</ruleml:var>
        </swrlx:individualPropertyAtom>
        <swrlx:individualPropertyAtom swrlx:property="hasBrother">
            <ruleml:var>x2</ruleml:var>
            <ruleml:var>x3</ruleml:var>
        </swrlx:individualPropertyAtom>
    </ruleml:_body>
    <ruleml:_head>
        <swrlx:individualPropertyAtom swrlx:property="hasUncle">
            <ruleml:var>x1</ruleml:var>
            <ruleml:var>x3</ruleml:var>
        </swrlx:individualPropertyAtom>
    </ruleml:_head>
</ruleml:imp>
```

# What is SWRL Tab?

The **SWRL Tab** is an extension to the Protégé-OWL Pluginthat permits the creation and execution of SWRL rules.

The editor can be used to create SWRL rules, edit existing SWRL rules, and read and write SWRL rules.