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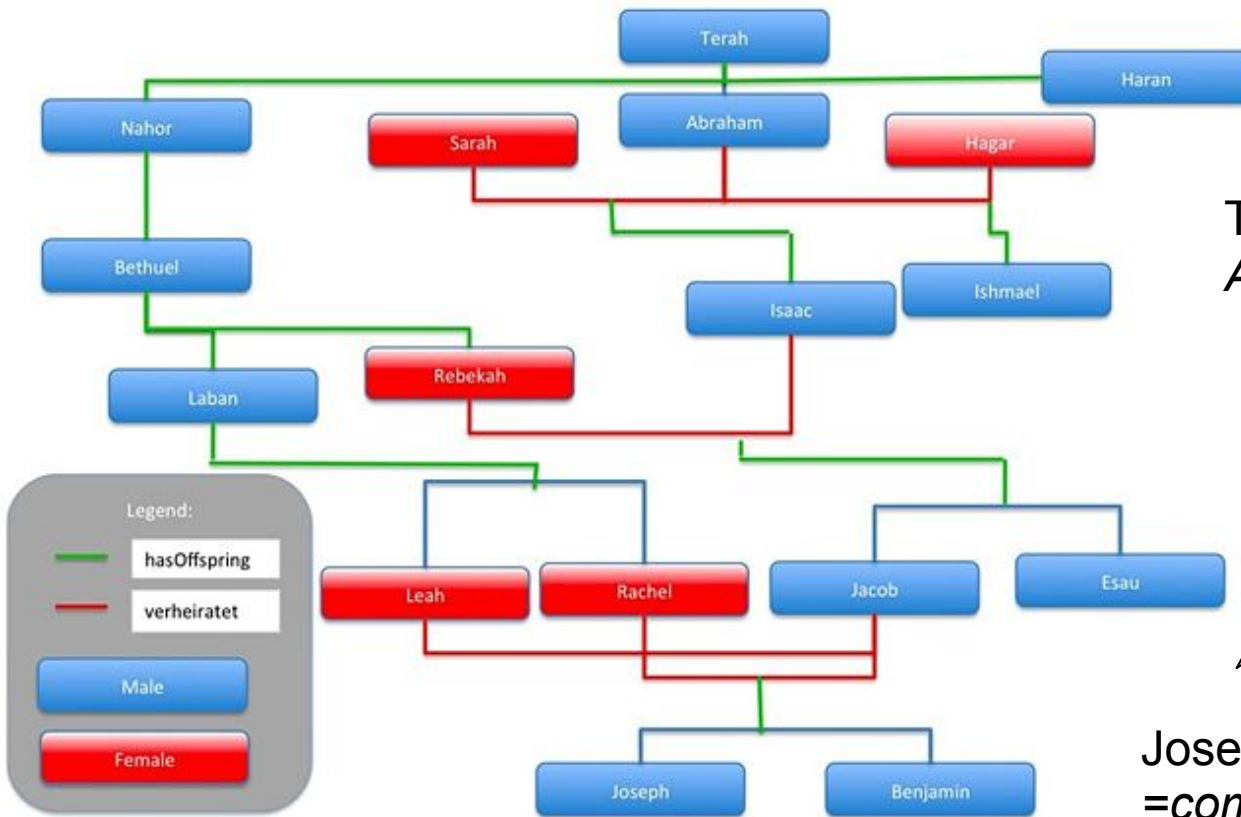
## **SMW Simple Rules Prototype**

**Results of Vulcan, Inc. Project haAR**

**ontolog Meetup**  
**Dec 11, 2008**

# Imagine a wiki for genealogy

## The case for simple rules



easy to be incomplete

Terah has son Abraham !  
*Abrahams' father is Terah ?*

lots of information could be stated automatically

Joseph brother of Benjamin...  
=compute=>  
*Benjamin is brother of Joseph ..*

# What do we mean by „Simple Rules“

## Simple Rules

- Simple Rules Protototype based on SMW has
  - Derived categories and properties  
(e.g MegaCities are cities with  $>x$  inhabitants)
  - Reasoning with property characteristics  
(symmetry, transitivity, inverse)
  - Support of mathematical equations
- Templates simplify the definition of rules for non-expert users

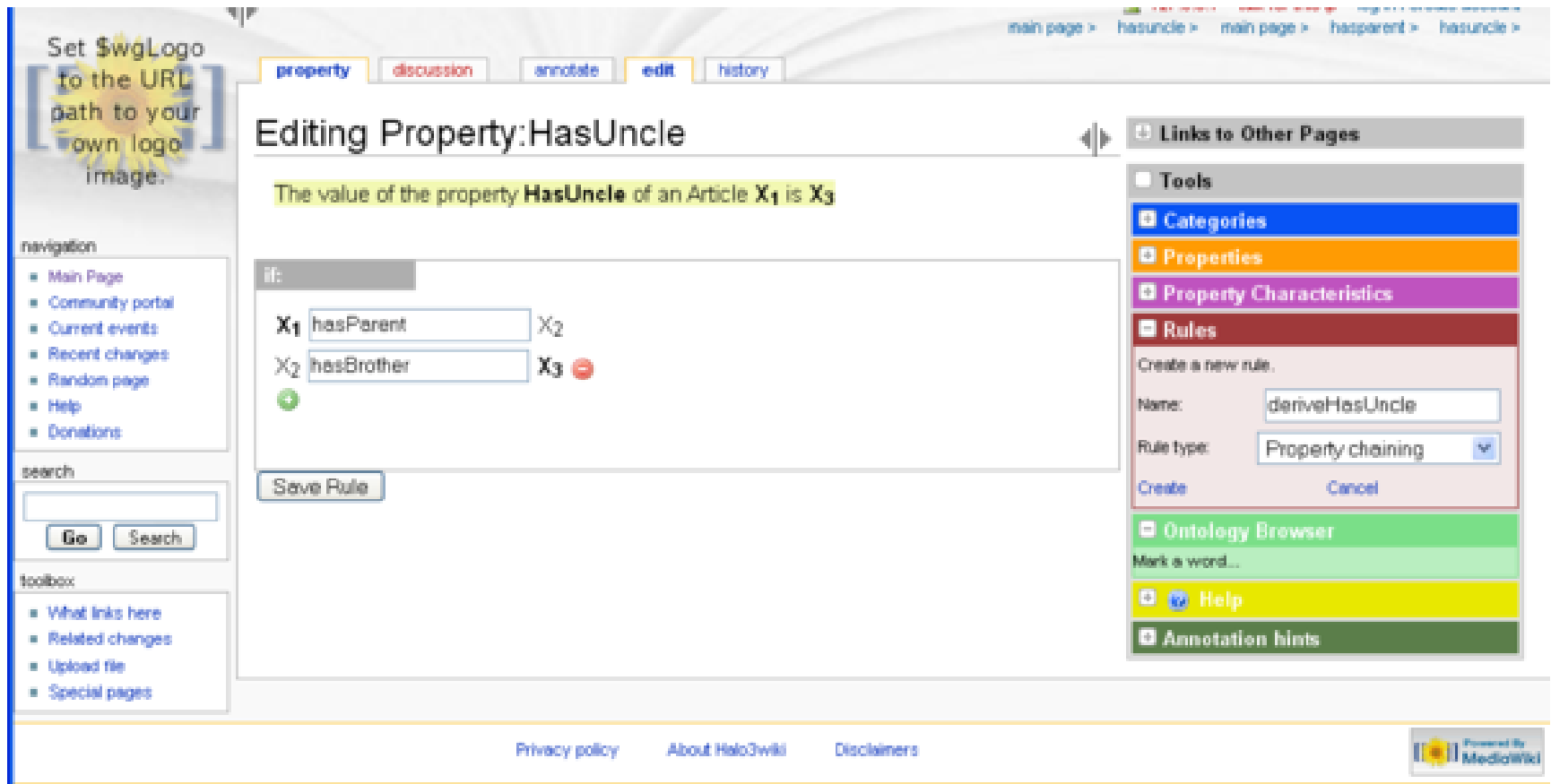
# Objectives of the Simple Rules Prototype

## in Vulcan project halAR

- Allow to define and reason with rules in Semantic Media Wiki
- Establish simple rules language
- Connect to external rule engines
- Use common service interface to connect reasoners and triple stores
- Support SPARQL and not only ASK
- Leverage templates to instantiate rules by non-expert users

# Rule templates for non-expert users

## Property Chaining



Set \$wgLogo to the URL path to your own logo image.

main page > hasuncle > main page > hasparent > hasuncle >

property discussion annotate edit history

### Editing Property:HasUncle

The value of the property **HasUncle** of an Article **X<sub>1</sub>** is **X<sub>3</sub>**

if:

X<sub>1</sub> hasParent X<sub>2</sub>

X<sub>2</sub> hasBrother X<sub>3</sub>

Save Rule

Links to Other Pages

Tools

- Categories
- Properties
- Property Characteristics
- Rules
  - Create a new rule.
  - Name:
  - Rule type:
  - Create Cancel
- Ontology Browser
- Mark a word...
- Help
- Annotation hints

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# Rule templates for non-expert users

## Defined categories

### Editing Category: Flirting18YearOldBoys





Derive Category Flirting18YearOldBoys by complex rule



#### Head

All articles  $X_1$  belonging to Category Flirting18YearOldBoys are defined by

#### Body

All articles  $X_1$  belong to category Boy  

**AND**

All articles  $X_1$  have the property Age with value 18  

**AND**

All articles  $X_1$  have the property Flirts with with value  $X_2$   

**AND**

Being member of a certain [category](#) or [property](#)

This rule implies the following:

Save rule

# Rule templates for non-expert users

## Calculation Rules / Equations

### Editing Property: Gravitational force



Gravitational force =

✓ (syntax checked) [edit formula](#)

Please specify the values of the following variables in your formula:

**m** is a  property value

absolute term


**g** is a  property value

absolute term


# Derived information can be explained

## Explanations


### Facts about Ann ⓘ

RDF feed 

Has age 18 + 

Has parent Sue + , and Sam + 

Has uncle Joe +  + 

Lives in San Diego + 

special

## Explanations

Article:

Property:

Value:



Ann has uncle Joe BECAUSE  
Ann has parent Sue AND  
Sue has brother Joe



# Simple rules extend the capabilities of SMW significantly

## Summary

Feature	Plain SMW	Simple Rules Prototype
Subcategory Person -> Man	+ (limited)	+
Subproperty hasParent -> hasMother	+ (limited)	+
Synonyms Abraham -> Abram	+ (redirects, not transitive)	+ (configurable)
Domain/range hasMother domain Person	-	+
Inverse properties hasParent <-> hasChild	-	+
Transitive properties hasAncestor	-	+
Symmetric properties hasSibling	-	+
User-defined rules X hasUncle Y <-> X hasParent Z AND Z hasSibling Y AND Y:Man.	-	++
Query-Language	ASK	ASK / SPARQL