

Access *privacy* "world" *sauf*
owner group world (chmod 775)
└
└
└
1 execute
2 write
4 read

Attribute-based access control } rule-engine
└ context
└ auth.
└ email

Rules — internal owl 2.0

- external

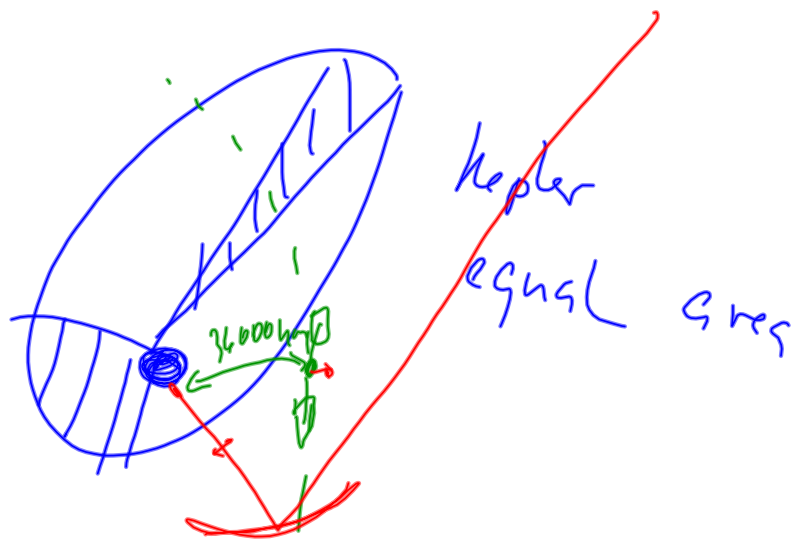
• business rules

• Moses

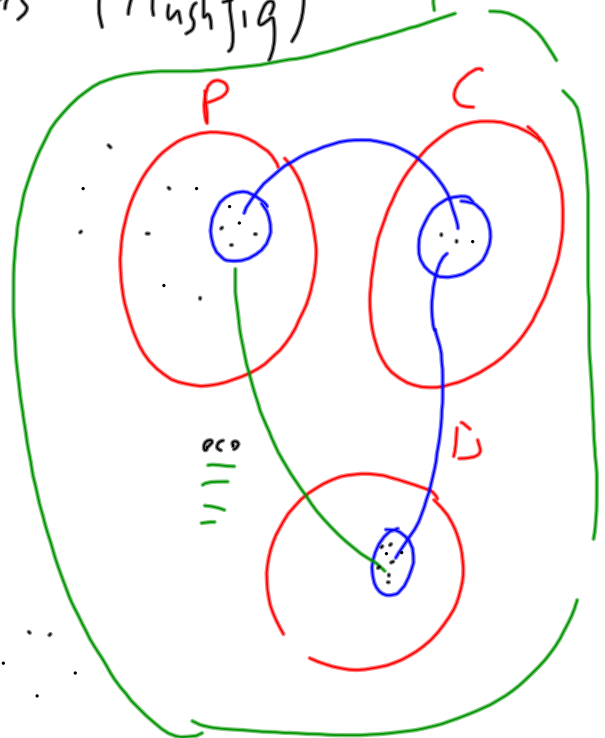
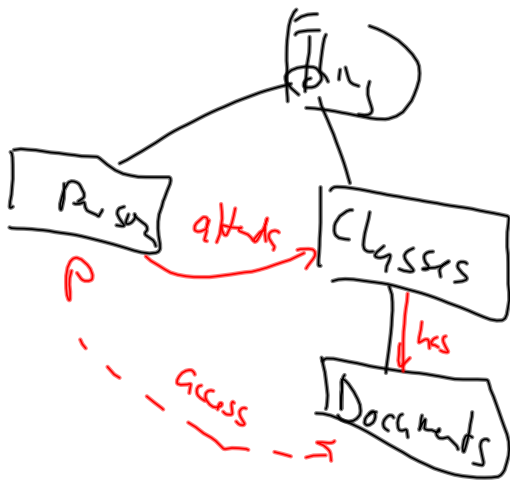
• natural language



& knowledge rules

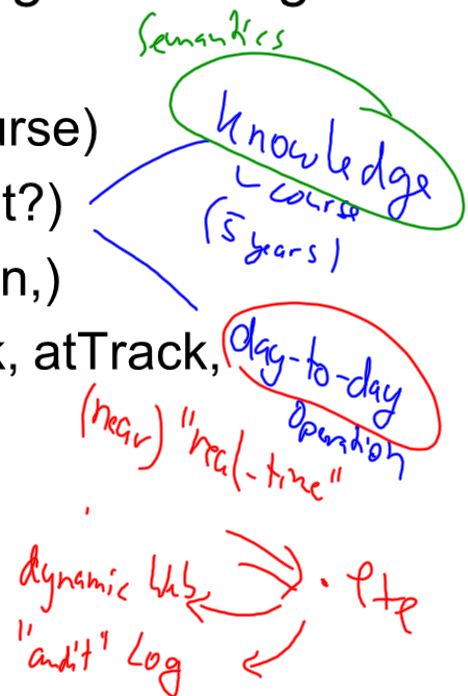


Rule from 4770 courses (Mushfiq) THIRU



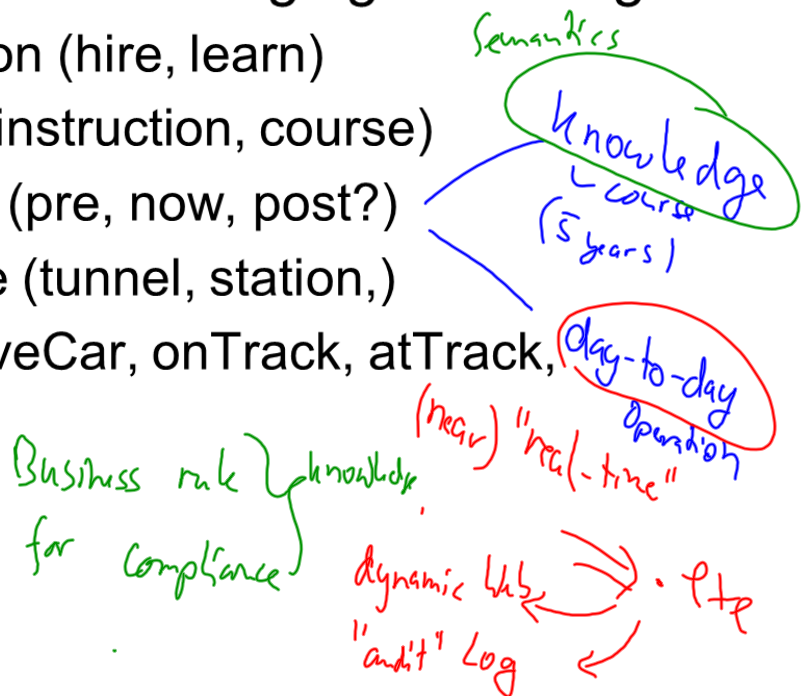
Senario

- Need a model for managing knowledge
 - Who :Person (hire, learn)
 - What :Job (instruction, course)
 - When :Time (pre, now, post?)
 - Where:Place (tunnel, station,)
 - Context : driveCar, onTrack, atTrack, useCrane



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Prepare for Reasoning with x Unik Wiki - Courses - UNIK4 x Unik Wiki - Courses - Mobil x Context aware systems - C x DLD Conference BREAKING x

wiki.unik.no/index.php/Courses/4710Access

TriadSkin powered by PmWiki

<http://www.jessrules.com/jess/software/ok>

Trial versions

You may download this trial binary-only version of Jess and use evaluate Jess for your purposes. Any other use of Jess (Commercial, Government, R&D and no-fee Academic/Student Use) requires : Smith, casmith@sandia.gov, to license Jess software. Licensed : full Jess source code.

Note: After 30 days, this distribution expires and will cease to function.

- [jess 7.1p2 classes, docs and samples \(trial version\)](#)

GraphViz
Mac users: Find installation guide in <http://protegewiki.stanford.edu/wiki/OWLviz>

Creating rules for access

Rule1: $\text{Person}(?P) \wedge \text{attends_course}(?P, ?C) \wedge \text{Course}(?C) \wedge \text{hasDocument}(?C, ?D) \rightarrow \text{hasAccess}(?P, ?D)$

- this rule explains that a person "P" which attends a course (C) has access to documents (D) which are part of that course
- Scenario (b): Show an overview on all classes (using OntoGraph)

```

graph TD
    Thing --> EmployeeID
    Thing --> WorkUnit
    Thing --> Role
    Thing --> Privilege
    Thing --> Resource
    Thing --> AdminResource
    Thing --> WebResource
    Thing --> Employee
    Thing --> Department
    Employee --> Supervisor
    Employee --> DeptEmployee
    Role <--> Privilege
    Role <--> Resource
  
```

Rules-based access

- Import the ontology UNIK4710.owl in Protege 3.4.5
- Open Protege, import UNIK4710.owl file

Rules for the 4710-Business-Roles ontology

- Show the rules

Prepare for Reasoning with ... Unik Wiki - Courses - UNIK ... Unik Wiki - Courses - Mobil ... Context aware systems - C ... DLD Conference BREAKING ...

wiki.unik.no/index.php/Courses/4710Access

Active Ontology Entities Classes Object Properties Data Properties Individuals OWLViz DL Query OntoGraf **SWRL**

Rules:

```

Resource(?X), Role(?R), hasPrivilege(?R, ?P), needPrivilege(?X, ?P) -> hasAccessTo(?R, ?X)
EmployeeID(?ID), Resource(?X), hasPrivilege(?R, ?P), hasRole(?ID, ?R), needPrivilege(?X, ?P) -> hasAccessTo(?ID, ?X)
EmployeeID(?ID), Resource(?X), hasPrivilege(?R, ?P), hasRole(?ID, ?R), needPrivilege(?X, ?P), hasPresence(?ID, ?PR),
equal(?PR, "1"^^int) -> hasAccessTo(?ID, ?X)

```

Explanation of the rules:

- Rule1: generate the access rules for people which are allowed to work with certain documents

Next step

- Execute rules and see results

Differences and Experiences with Protege versions

- Protege 4.1 has a better handling of graphics, but does not support JESS
- Protege 3.4.5 runs JESS (see installation on this page)

Recommendation:

- Creation and updates in 3.4.5
- you may look at them in 4.1, but "don't save in 4.1"
- stick to 3.4.5
- develop small ontologies (per area), and then rather "gather ontologies", (combine them for your usage scenario)

34.8 *no compatibility between 4.1 to 4.20*

Appendix

Setting up Rules engine in Protege 4.1

- Create a new new TAB, and name it SWRL (Screenshot shows MAC environment, use "Windows" for Windows)

The screenshot shows the Protege 4.1 interface. The 'View' menu is open, showing a list of views: Active Ontology, Entities, Classes, Object Properties, Data Properties, Individuals, OWLViz, DL Query, OntoGraf, and SWRL. The 'SWRL' option is checked. Below the menu, the 'Create new tab...' option is highlighted in blue. The background shows the main Protege workspace with some text from the rules engine.

Semantic Core
↓
US\$? } ~~sell~~
extension }
Academic
→ new extension
 (US\$)

Open World

don't know → ohag

everyone has access if
not otherwise noted



Closed World

do I know?

yes oh

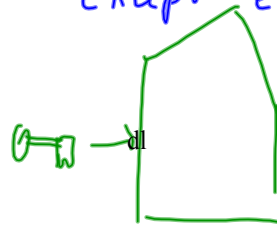
no

does not exist

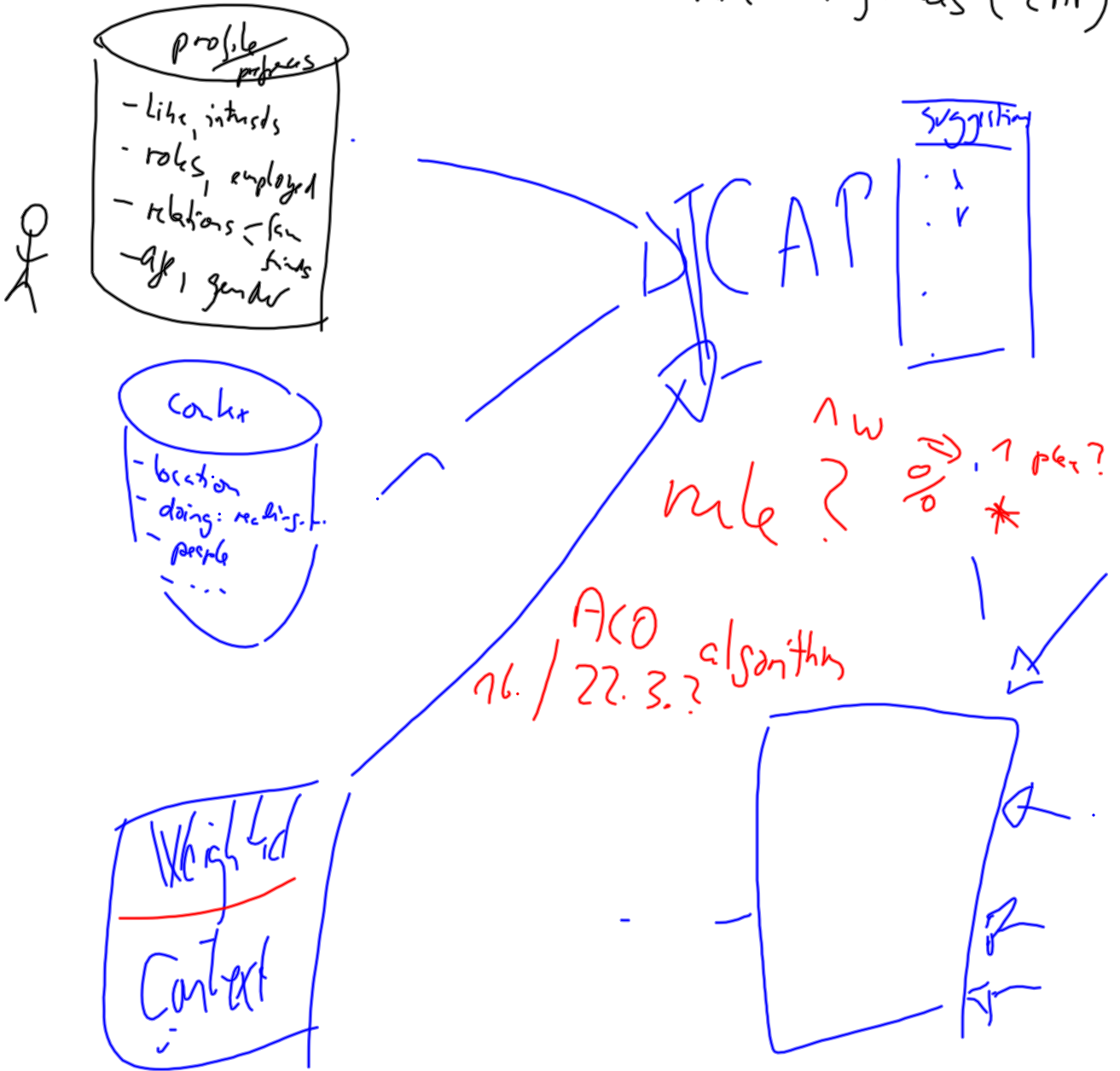
false

no-one has access

except explicitly
mentioned



Context-aware Preferences (CAP)



light-weight ontology

