Josef

Martin

Philip

MARCEL

JAVIER

Jose

Susana

"Which companies are on the same campus as Google in California?"

Syntax ⟷ Semantics

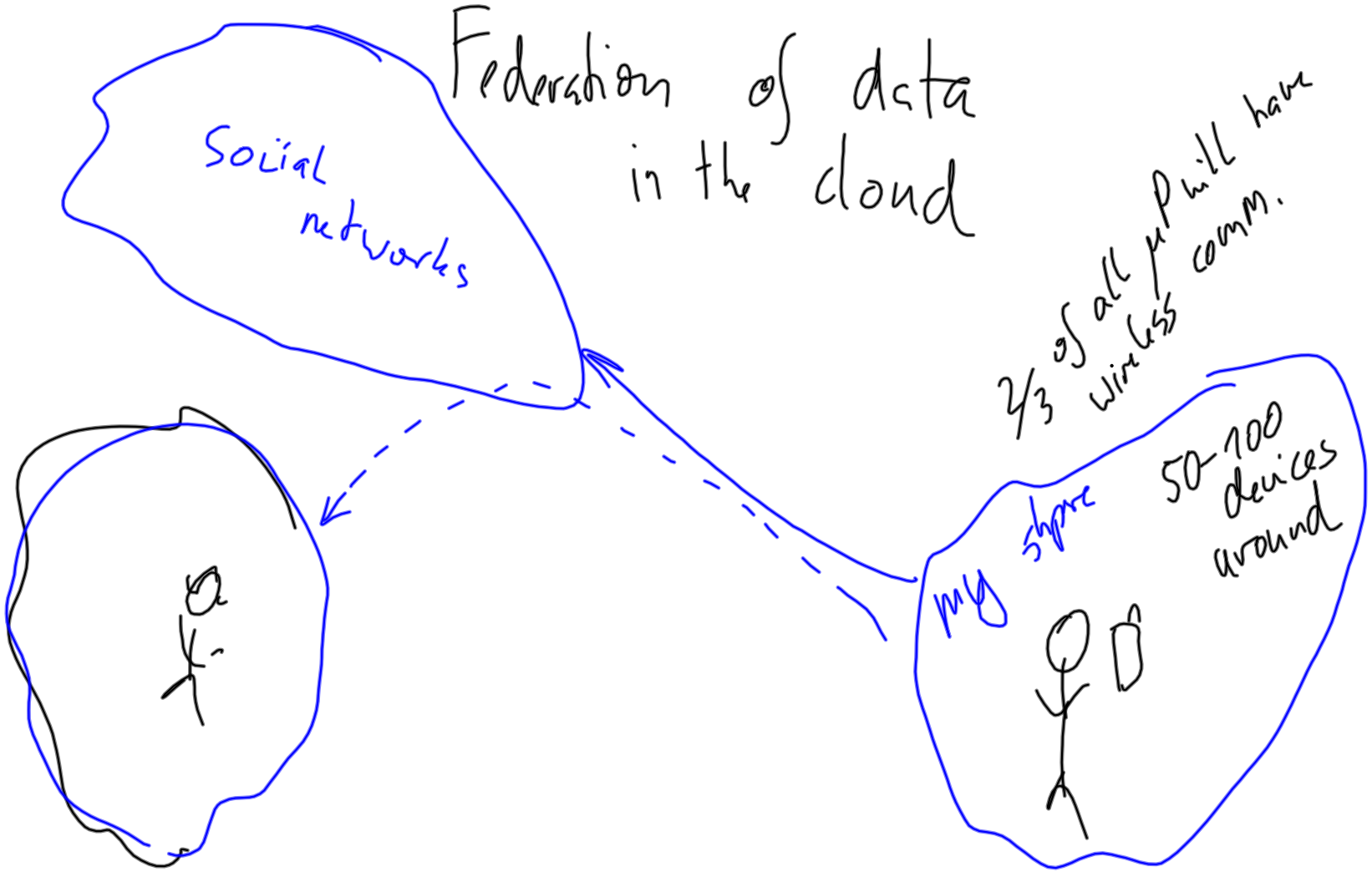
"structure" "meaning"

Person – "thing"

Location

Place

Music

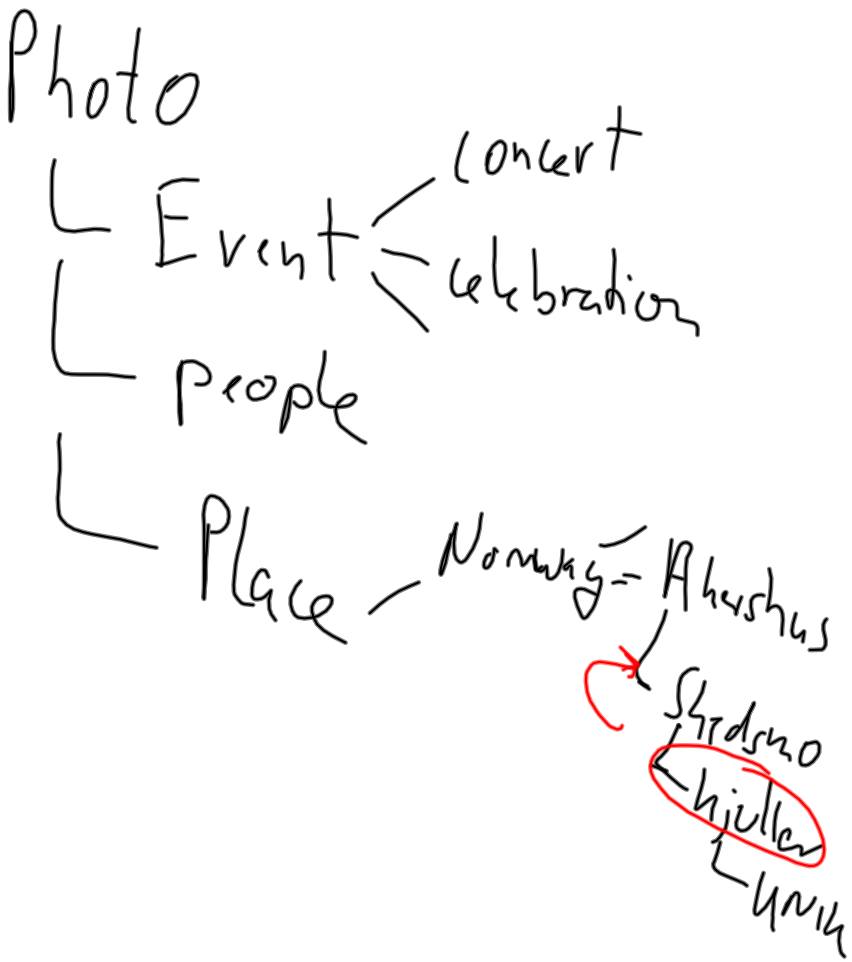

Federation of data
in the cloud
Social
networks
2/3 of all µP will have
wireless comm.
my
share
50-100
devices
around

# Tagging

miss relation

depth (level)

More specific

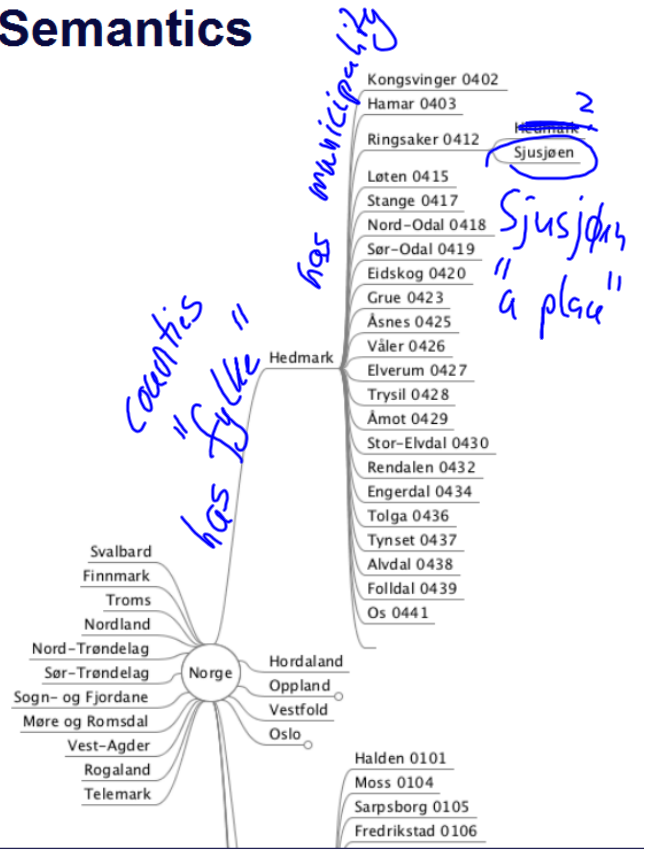


UNIK
UNIVERSITY GRADUATE CENTER

# Discussion: Tagging Versus Semantics


Discuss:

- what are the main elements of semantics
- differences between .rdf, .owl,
- "what are your expectations on semantics?"



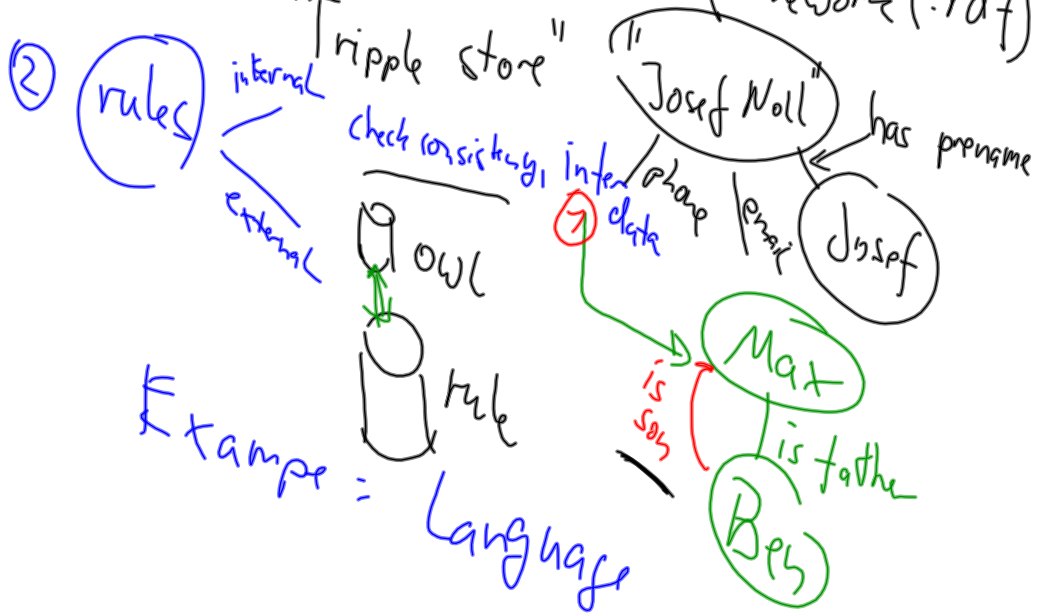



Finn: Neste Forrige Marker tekst Skill mellom store/små bokstaver

# Elements of Semantic Web

① Structured representation ⇒ Ontology (.owl)

↳ Resource description framework (.rdf)



Semantic Web

Wikipedia

Syntax

vs

Semantic Web Services

- api to retrieve data between systems
  - functionality
    - service
      - payment
        - functional & visa, mastr, paypal...
        - non-functional parameters
          - add. charges
  - weight
  - size
- buy:
  - delivery options

# Need for new & highly scalable technologies

IBM centre of excellence Semantic Techn. in Stavanger

**Process control systems**

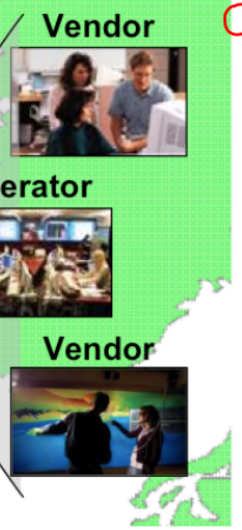
**Web services**
Open IT standards

**Sensors**
Downhole & onboard facilities

**Real-time integration solution**

**Semantic models**
Open industry standards

**Broadband communication**
Fiber optic cables & wireless networks




source: Kaare Finbak, IBM

UNIK UNIVERSITY GRADUATE CENTER

Web ontology language

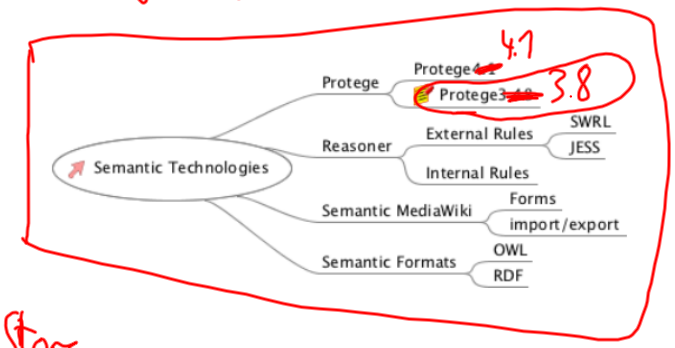
# Fundamentals Of Semantics

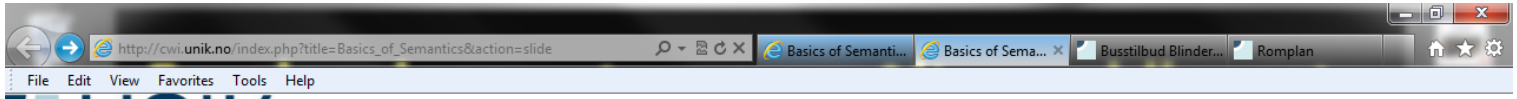
- Explain: RDF, OWL, ..
- Discuss: use cases, restrictions

Semantics:

- .xml relation between subject & object
- .rdf subject, predict, object
- ~~.rdfs vocabulary~~ for properties
- ontologies as data models of a domain
  - describe through rdf or owl
  - owl is more expressive
- Extension of semantics through rules
- Rules might replace ontologies

Think - Store

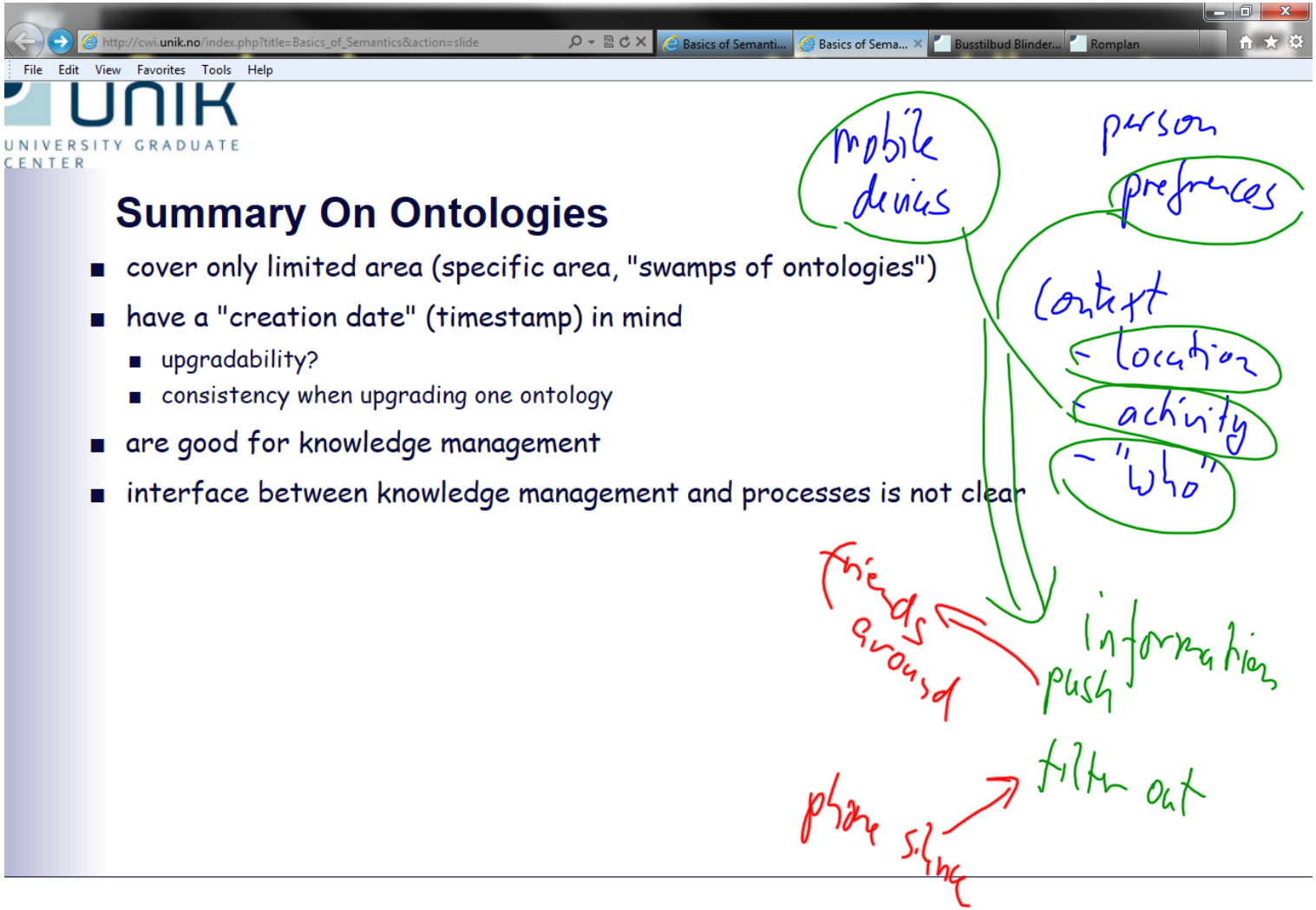


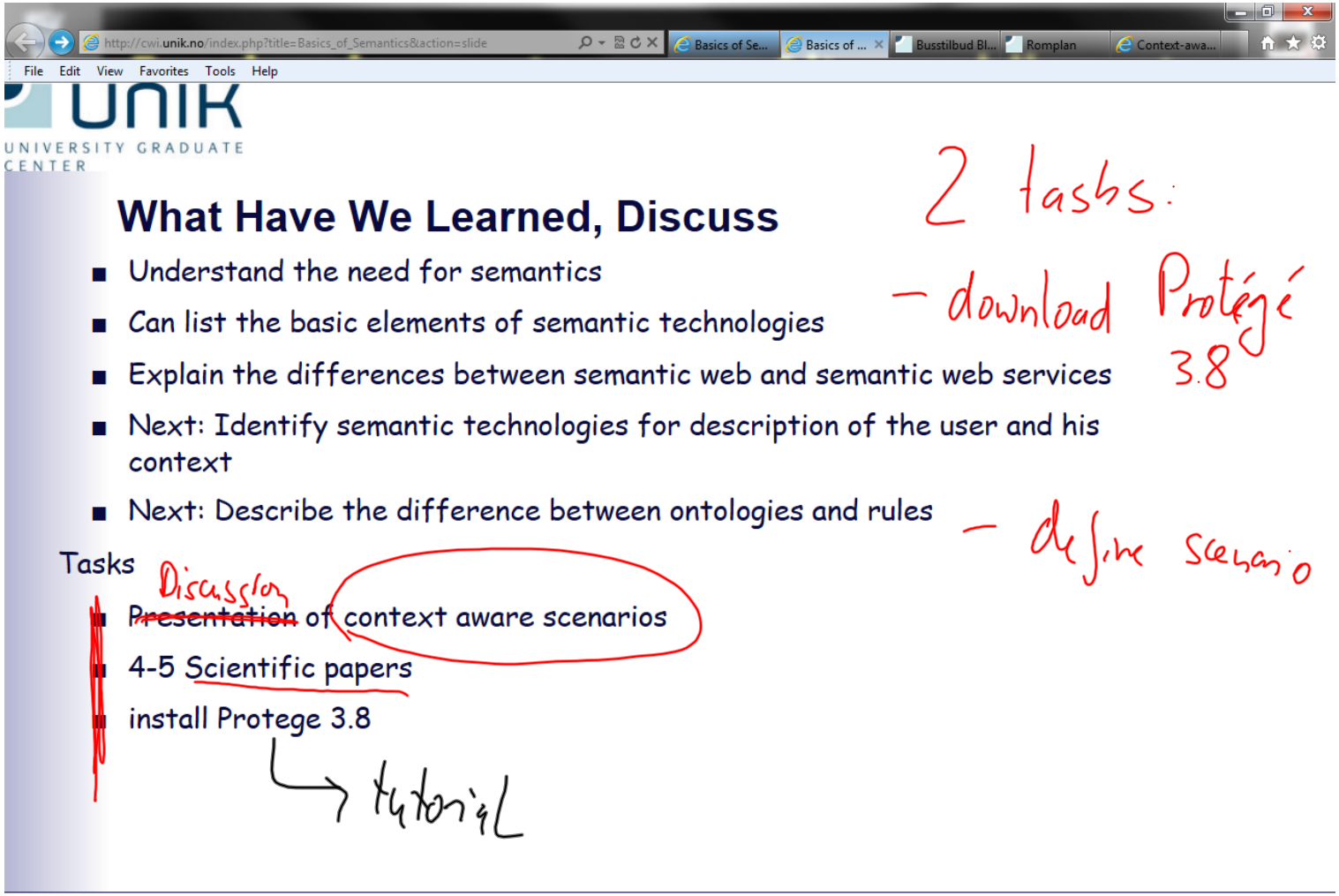


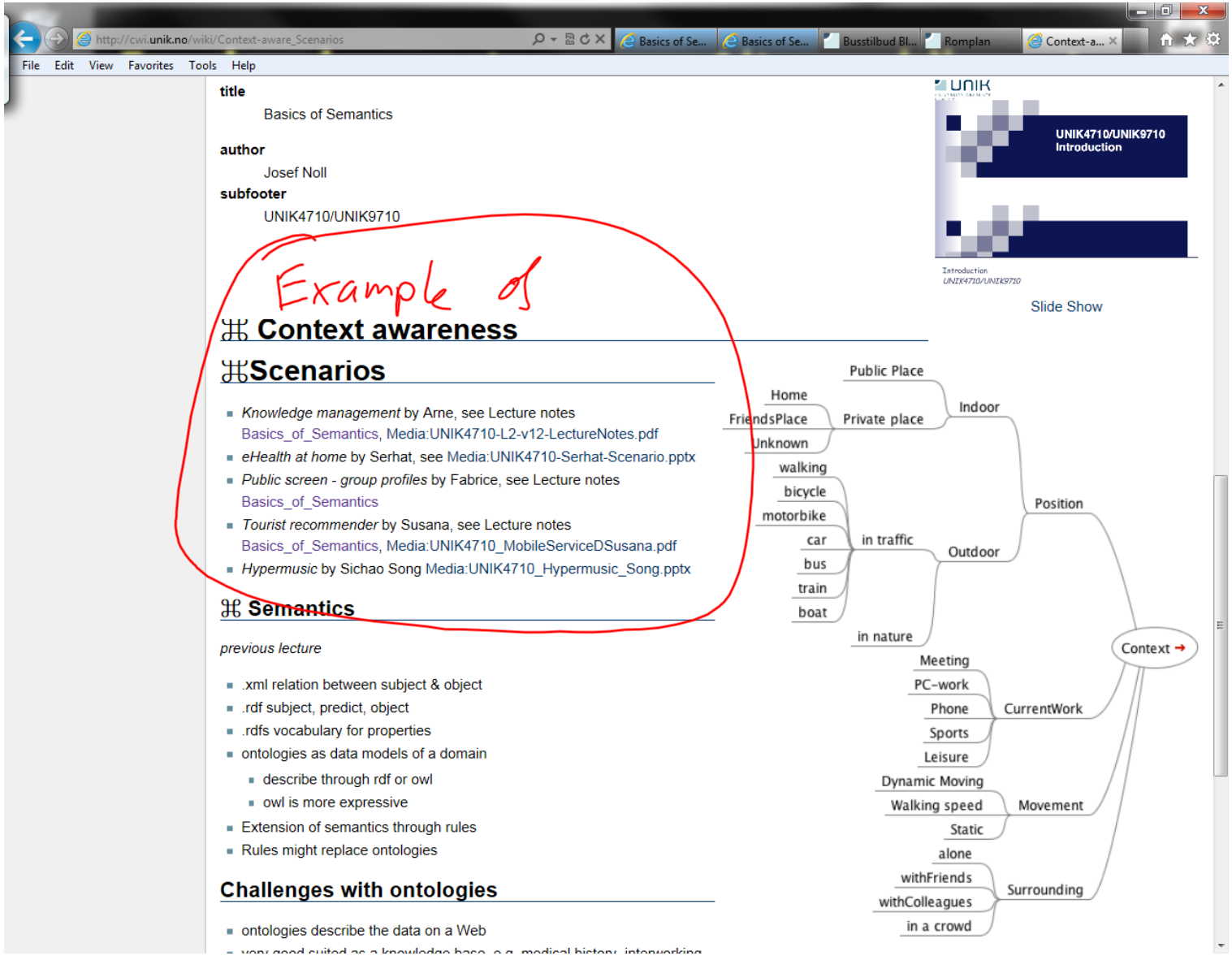

UNIK
UNIVERSITY GRADUATE CENTER

## Challenges With Ontologies

- ontologies describe the data on a Web
- very good suited as a knowledge base, e.g. medical history, interworking of medicine, oil drilling
- when using a semantic model in the real world, the challenge is to get changes (updates) to the ontologies. Example: car industry, where cars are produced under the same header with slightly different outfit, where manufacturers change frequently,...


http://cwi.unik.no/index.php?title=Basics_of_Semantics&action=slide
Basics of Semanti...
Basics of Sema...
Busstilbud Blinder...
Romplan
File Edit View Favorites Tools Help
UNIK
UNIVERSITY GRADUATE CENTER
Summary On Ontologies
cover only limited area (specific area, "swamps of ontologies")
have a "creation date" (timestamp) in mind
upgradability?
consistency when upgrading one ontology
are good for knowledge management
interface between knowledge management and processes is not clear
mobile devices
person
prefrences
context
- location
- activity
- "who"
friends around
information push
filter out
phone silence


http://cwi.unik.no/index.php?title=Basics_of_Semantics&action=slide
Basics of Se...
Basics of ...
Busstilbud Bl...
Romplan
Context-awa...
File Edit View Favorites Tools Help
UNIK
UNIVERSITY GRADUATE CENTER
What Have We Learned, Discuss
Understand the need for semantics
Can list the basic elements of semantic technologies
Explain the differences between semantic web and semantic web services
Next: Identify semantic technologies for description of the user and his context
Next: Describe the difference between ontologies and rules
Tasks
Presentation of context aware scenarios
4-5 Scientific papers
install Protege 3.8
2 tasks:
- download Protégé 3.8
- define scenario
Discussion
tutorial


http://cwi.unik.no/wiki/Context-aware_Scenarios
Basics of Se...
Basics of Se...
Busstilbud Bl...
Romplan
Context-a...
File Edit View Favorites Tools Help
title
Basics of Semantics
author
Josef Noll
subfooter
UNIK4710/UNIK9710
UNIK4710/UNIK9710 Introduction
Introduction UNIK4710/UNIK9710
Slide Show
Example of
Context awareness
Scenarios
Knowledge management by Arne, see Lecture notes Basics_of_Semantics, Media:UNIK4710-L2-v12-LectureNotes.pdf
eHealth at home by Serhat, see Media:UNIK4710-Serhat-Scenario.pptx
Public screen - group profiles by Fabrice, see Lecture notes Basics_of_Semantics
Tourist recommender by Susana, see Lecture notes Basics_of_Semantics, Media:UNIK4710_MobileServiceDSusana.pdf
Hypermusic by Sichao Song Media:UNIK4710_Hypermusic_Song.pptx
Semantics
previous lecture
.xml relation between subject & object
.rdf subject, predict, object
.rdfs vocabulary for properties
ontologies as data models of a domain
describe through rdf or owl
owl is more expressive
Extension of semantics through rules
Rules might replace ontologies
Challenges with ontologies
ontologies describe the data on a Web
Context
Position
Indoor
Public Place
Private place
Home
FriendsPlace
Unknown
Outdoor
in traffic
walking
bicycle
motorbike
car
bus
train
boat
in nature
CurrentWork
Meeting
PC-work
Phone
Sports
Leisure
Movement
Dynamic Moving
Walking speed
Static
Surrounding
alone
withFriends
withColleagues
in a crowd