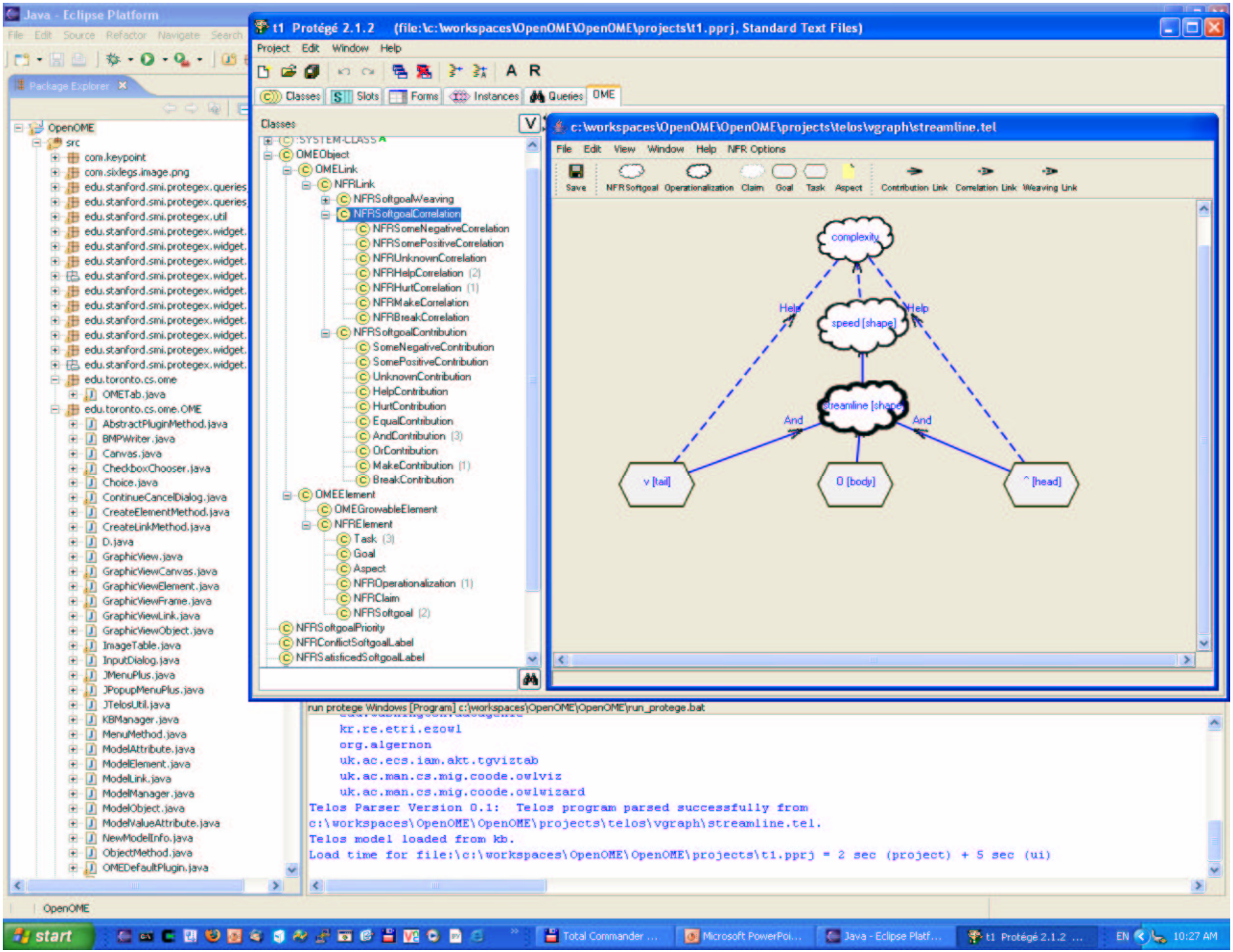
Tutorial 2
OpenOME distilled

On the Requirements, Design and Implementation of the legacy tool

http://www.cs.toronto.edu/~yijun/OpenOME.html

http://sourceforge.net/projects/openome


Java - Eclipse Platform
t1 Protégé 2.1.2 (file:\c:\workspaces\OpenOME\OpenOME\projects\t1.pprj, Standard Text Files)
Project Edit Window Help
Classes Slots Forms Instances Queries OME
c:\workspaces\OpenOME\OpenOME\projects\telos\vgraph\streamline.tel
File Edit View Window Help NFR Options
Save NFR Softgoal Operationalization Claim Goal Task Aspect Contribution Link Correlation Link Weaving Link
complexity
Help
Help
speed [shape]
streamline [shape]
And
And
v [tail]
0 [body]
^ [head]
run protege Windows [Program] c:\workspaces\OpenOME\OpenOME\run_protege.bat
kr.re.etri.ezowl
org.algernon
uk.ac.ecs.iam.akt.tgviztab
uk.ac.man.cs.mig.coode.owlviz
uk.ac.man.cs.mig.coode.owlwizard
Telos Parser Version 0.1: Telos program parsed successfully from
c:\workspaces\OpenOME\OpenOME\projects\telos\vgraph\streamline.tel.
Telos model loaded from kb.
Load time for file:\c:\workspaces\OpenOME\OpenOME\projects\t1.pprj = 2 sec (project) + 5 sec (ui)
start
Total Commander ...
Microsoft PowerPoi...
Java - Eclipse Platf...
t1 Protégé 2.1.2 ...
EN
10:27 AM

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1. Historical retrospective

- OME stands for Organizational Modeling Environment. It was part of the *Tropos* project to support goal-oriented and agent-oriented requirements engineering methodologies (at least 5 years development involving 10 man-year efforts)
- OME has been widely used by more than 130 users (across the globe)
- Every OME user must sign an agreement with *Techne* because the Knowledge Base was a module protected by the license
- To enlarge the user-base, we decide to open-source it last year … OpenOME

2. Requirements and features

- Is a Graph editor
  - A graph has elements and links in various form, basic operations include: Load, Save, Insert, Delete, Select, Cut, Paste, Hide, Highlight, Labelling, etc.
  - Multiple views (under development)
- Supports requirements engineering
  - Goal-oriented: goal reasoning through label propagation (NFR)
  - Agent-oriented: group goals into agents rationale (i*)
- Interchanges with other graph editors
  - Semantic Web queries: Protégé (OWL)
  - Layout algorithms: AT&T Graphviz (DOT)
  - Scalability: Microsoft Visio (XSLT) ……..under development
  - Model-driven development: Rational Rose (EMF/XMI) ……under planning

3. Design: MVC

- Model-View-Controller design pattern

1. *Model*: The Telos Knowledge Base representaiton and OME models
2. *View*: Graph presentation
3. *Controller*: commands in menu, toolbar and various methods

3.1 Model

- *ModelManager*
- *Telos**: requirements as knowledge
- Telos as metamodelling language
  - Level: Token, SimpleClass, MetaClass, MetaMetaClass, Builtin classes …
  - *.tel: L *X* IN {*Y*}* ISA {*Z*}* WITH {attribute,U:V}*
  - ER, NFR(vgraph), ISTAR, GRL
  - From *jtelos.dll* to *TelosParser*
  - Export Telos model to other models: *JTelosUtil.java*
    OTelos (ConceptBase), Protégé (KnowledgeBase)
    TODO: Eclipse Modeling Framework (XMI)

3.2 View

- GraphicView is a collection of GVElement, GVLinks, maps the tokens in Telos model into geometric shapes in the presentation *GVE$Record, GVL$Record* …encodes the location of the shapes, states of the presentation, etc. They are saved as *SerializedViewObjects*
- *GVElement, GVLink*
  Visitor pattern and Decorator pattern
- They are extended by the OME plugins

3.3 Controller

- *OMETab*: run it as standalone Java application, or as a plugin for Protégé or Eclipse (under development)
- *GraphViewFrame* and *OMEDefaultPlugin*: control the menu, toolbar and methods
  A method is interpretated as commands
  - No argument command: Layout
  - With one argument: Insert, …
  - With two arguments: CreateLink, Move …
  - With multiple arguments: Select, …
- They are extensible using the OME plugins

4. Implementation issues

- OME: 90% Java + 10% C/C++
- Recently
  - OpenOME: 99% Java + 1% scripts
  - Use the Eclipse IDE
  - CVS, bug report: host at SourceForge
  - 3 research developers + some contribution from you J

5. Relation to your project

- It is the graph editor client of the choice for your OmniGraphEditor project. You may choose additional open-source graph editor as bonus point (such as Dia, Visio, Eclipse GEF etc.), but that is not recommended because of the large efforts
- Opportunities:
  - You may add junit test cases to the code base to reveal bugs (publish it to the bug tracking system) and fix them (+5%)
  - You may apply design patterns, refactoring techniques on this legacy code base, showing as an improved complexity metrics (+2.5%)
  - You may tune the performance of the system to speed up the display, load/save for scalable graphs (+2.5%)
- Don’t forget your major project task (up to 100%!)
  - To study the editor methods in the OpenOME and adapt them to the OmniGraphEditor web service.