Wrap-up and Discussions

Final workshop of the ANR project GEMOC
March 17th, 2016

Benoit Combemale (Inria & Univ. Rennes 1)
http://people.irisa.fr/Benoit.Combemale
benoit.combemale@irisa.fr
@bcombemale

ANR-12-INSE-0011

Conclusion

- Scientific breakthroughs:
  - A concurrent and modular executable metamodeling approach
    - Cross-fertilization of the algorithm theory and the concurrency theory
  - An explicit behavioral language interface
  - The reification of the coordination concerns at the language level
- Technological breakthroughs:
  - Dedicated meta-languages integrated into the GEMOC Studio, atop Eclipse Modeling
  - Execution environment integrated within the Eclipse debug UI, incl. graphical animation, omniscient debugging, concurrency analysis and behavioral coordination

Conclusion

- Software components:
  - **Sirius Animator**: execution engine, animator designer/runtime, omniscient debugger, and trace/event managers
    - Host on ***Sirius lab*** for maturation as an Eclipse plugin (Obeo/INRIA)
    - ➢ *https://github.com/SiriusLab/ModelDebugging*
  - **MoccML**
    - will be diffused as an open source project (I3S/ENSTA Bretagne)
    - ➢ *https://github.com/gemoc/concurrency*
  - **BCOoL** and heterogeneous engine coordination
    - will be diffused as an open source project (I3S/INRIA)
    - ➢ *https://github.com/gemoc/coordination*
  - **GEMOC studio**: language and modeling workbench, wizard/dashboard, documentation and examples
    - ➢ *https://github.com/gemoc/gemoc-studio*

Further Developments

- Maturation of the generic tools (debugging env., concurrency env. and heterogeneous coordination env.)
- Maintenance of the GEMOC Studio
- Domain-specific property language, incl. for breakpoint definition
- Domain-specific debugging services
- Support external stimuli / concurrency in operational semantics
- Plug in other execution engines (xMOF)

Perspectives

- Deep investigation of the notion of language interface (viewpoint engineering, etc.)
- Formal analysis of model coordination
- Leveraging the execution trace of, possibly heterogeneous, coordinated executable models
- Simulation, model explorer, model checking
- Coordination of discrete and continuous models
- Co-simulation (incl., FMI)
- Adaptable MoC at the language level
- @design/compile time: design space exploration, optimizing compilers
- @runtime: code adaptation, code obfuscation
- Live and collaborative modeling (e.g., for sustainability systems)
- SLE in Education

Join us!

The GEMOC Initiative

http://gemoc.org ~ @gemocinitiative

Advisory Board: Betty Cheng, Benoit Combemale, Jeff Gray, Jean-Marc Jézéquel and Bernhard Rumpe