Modular Language Engineering

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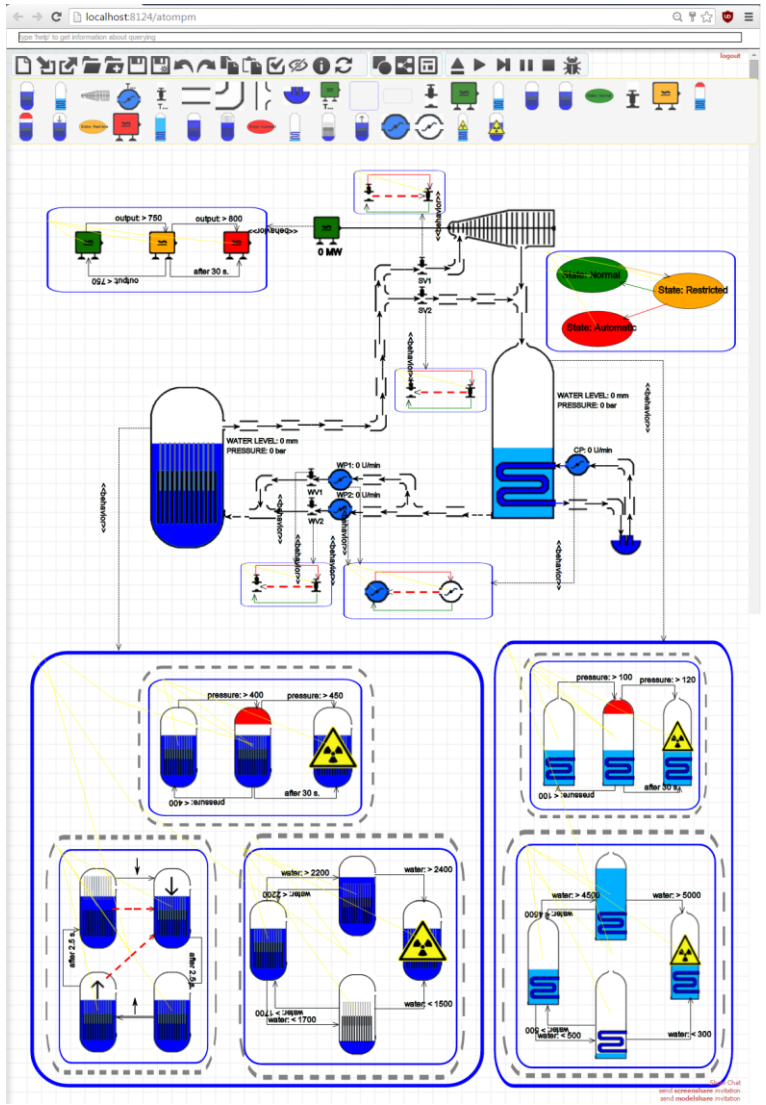
Why?

Concerns:

- Debugging
- Testing
- V&V (Properties)

Language Engineering

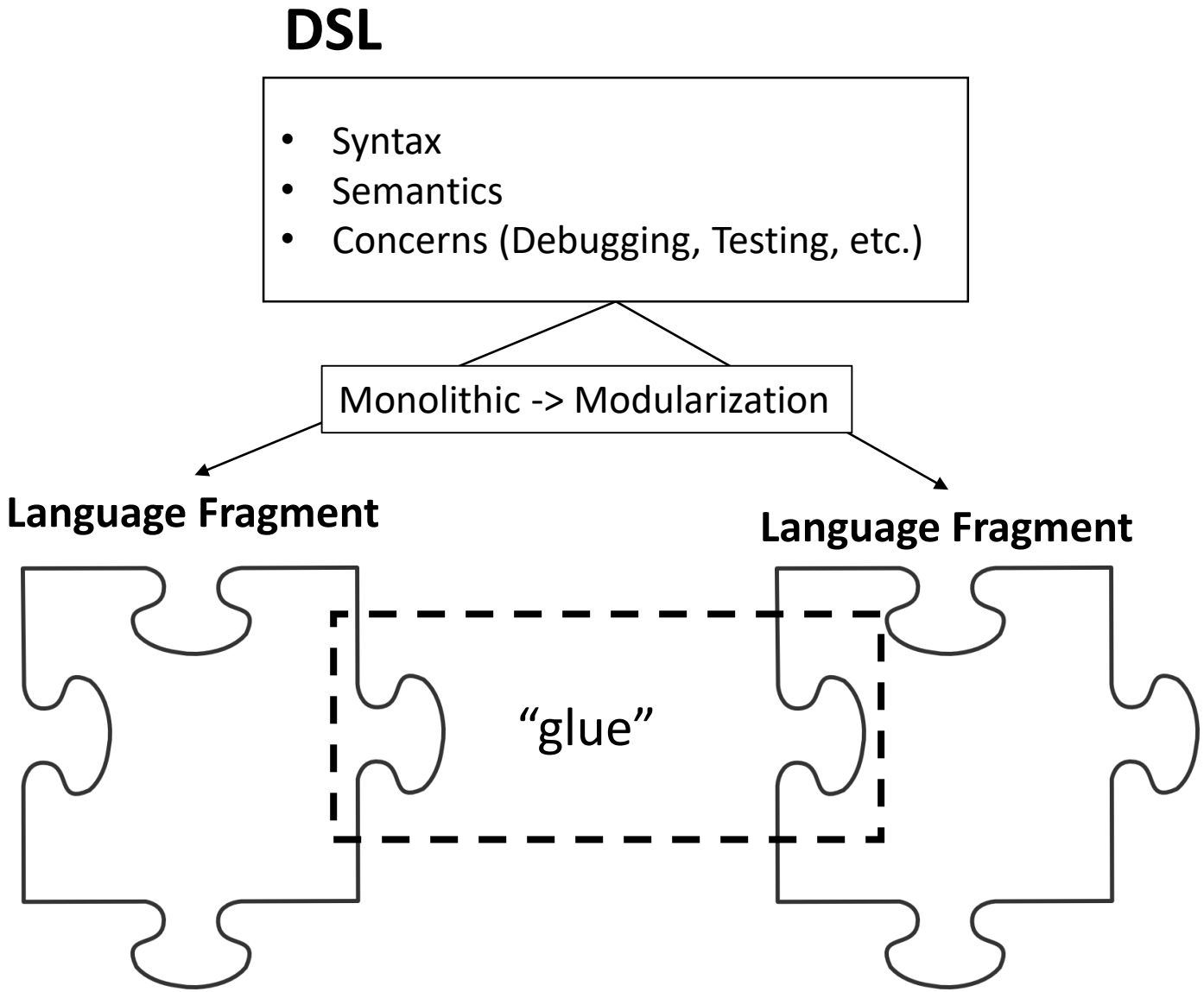


Combine Existing Languages
-> possibly hybrid behaviour

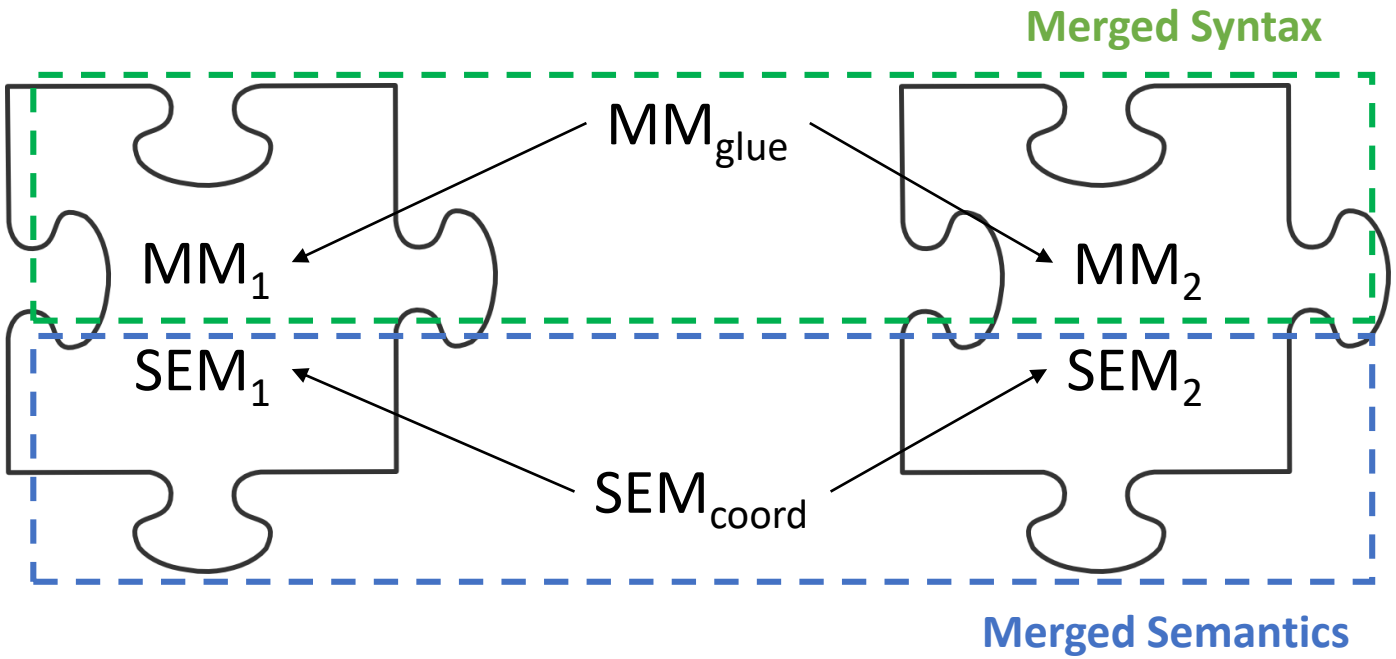
Need for **reuse**!

Syntax Semantics

What?

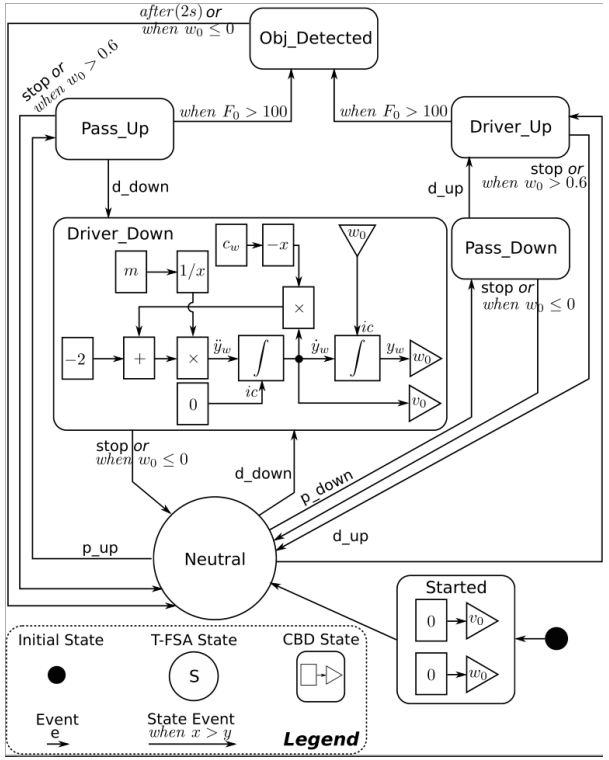

DSL
• Syntax
• Semantics
• Concerns (Debugging, Testing, etc.)
Monolithic -> Modularization
Language Fragment
Language Fragment
“glue”

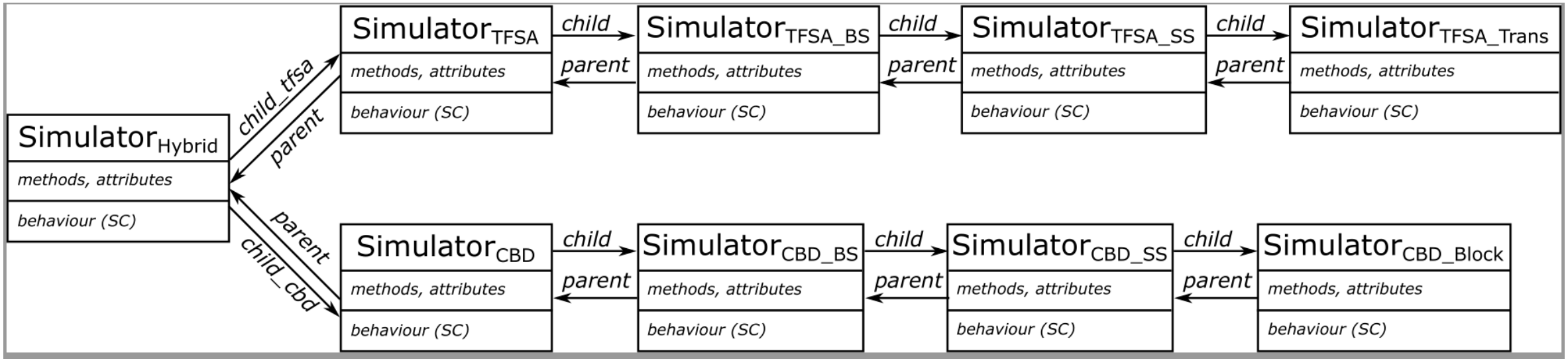
How?


Merged Syntax
MM_glue
MM_1
MM_2
SEM_1
SEM_2
SEM_coord
Merged Semantics

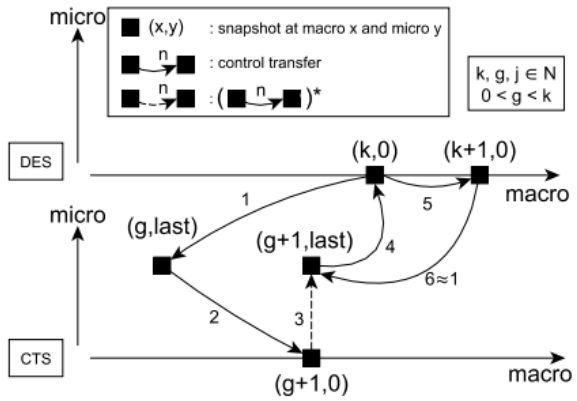
How? (Black-Box)

- Hybrid TFSA-CBD Language

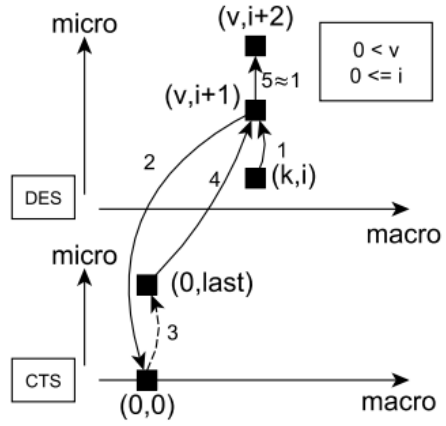




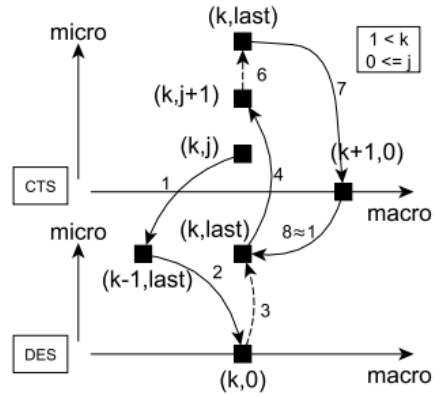
How? (White-Box)



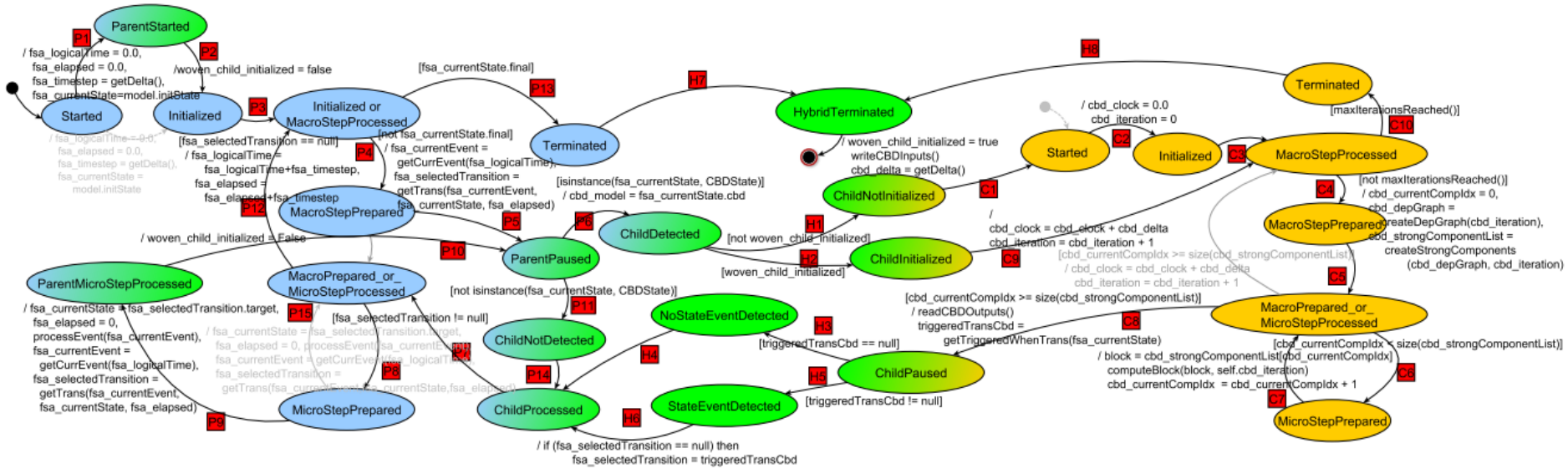
(a) DES-CTS – No micro-steps executed.



(b) DES-CTS – Micro-steps executed.



(c) CTS-DES.



Roadmap

- Create language for specifying semantic interactions
- Extend to “cross-cutting concerns” (debugging)
  - “Glue” metamodel: extra concepts
- “Fragmentize” languages to basic concepts
  - Library of composable fragments
  - Recompose existing languages (such as Statecharts)
- Create tool support