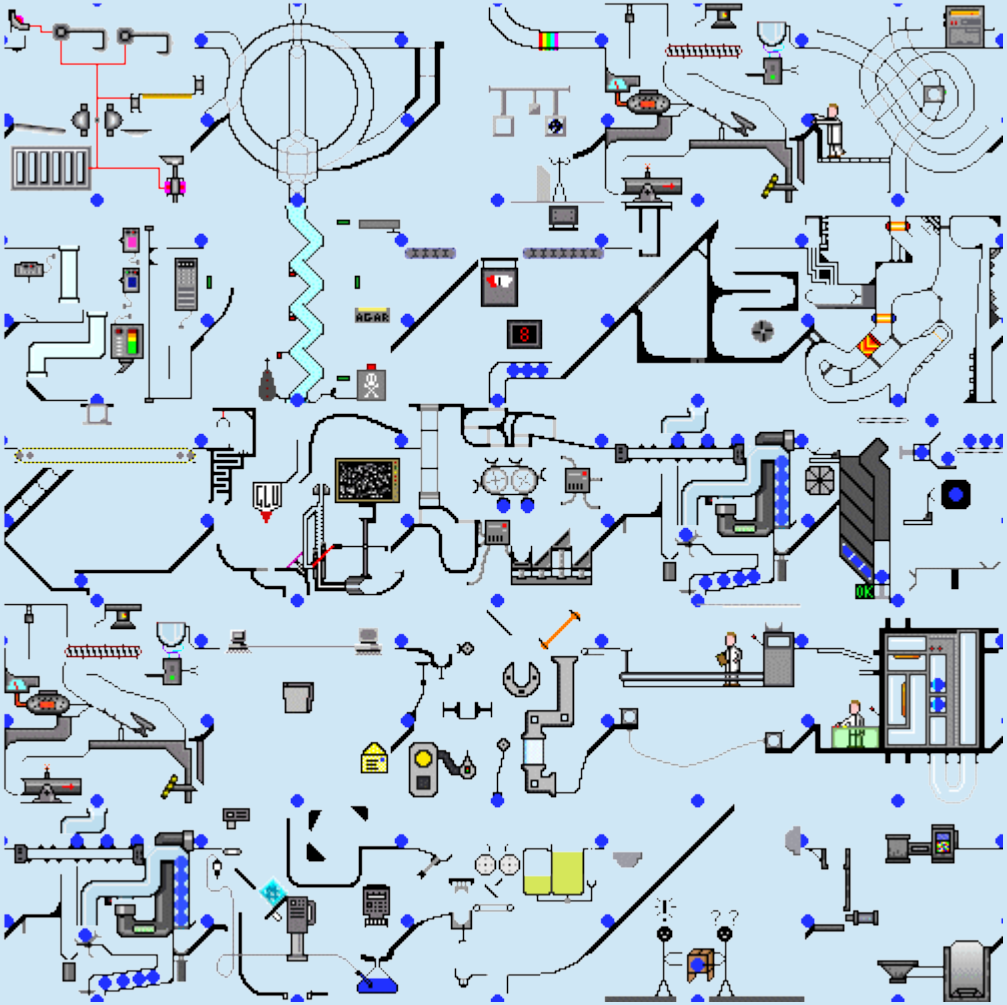
Dclare for MPS

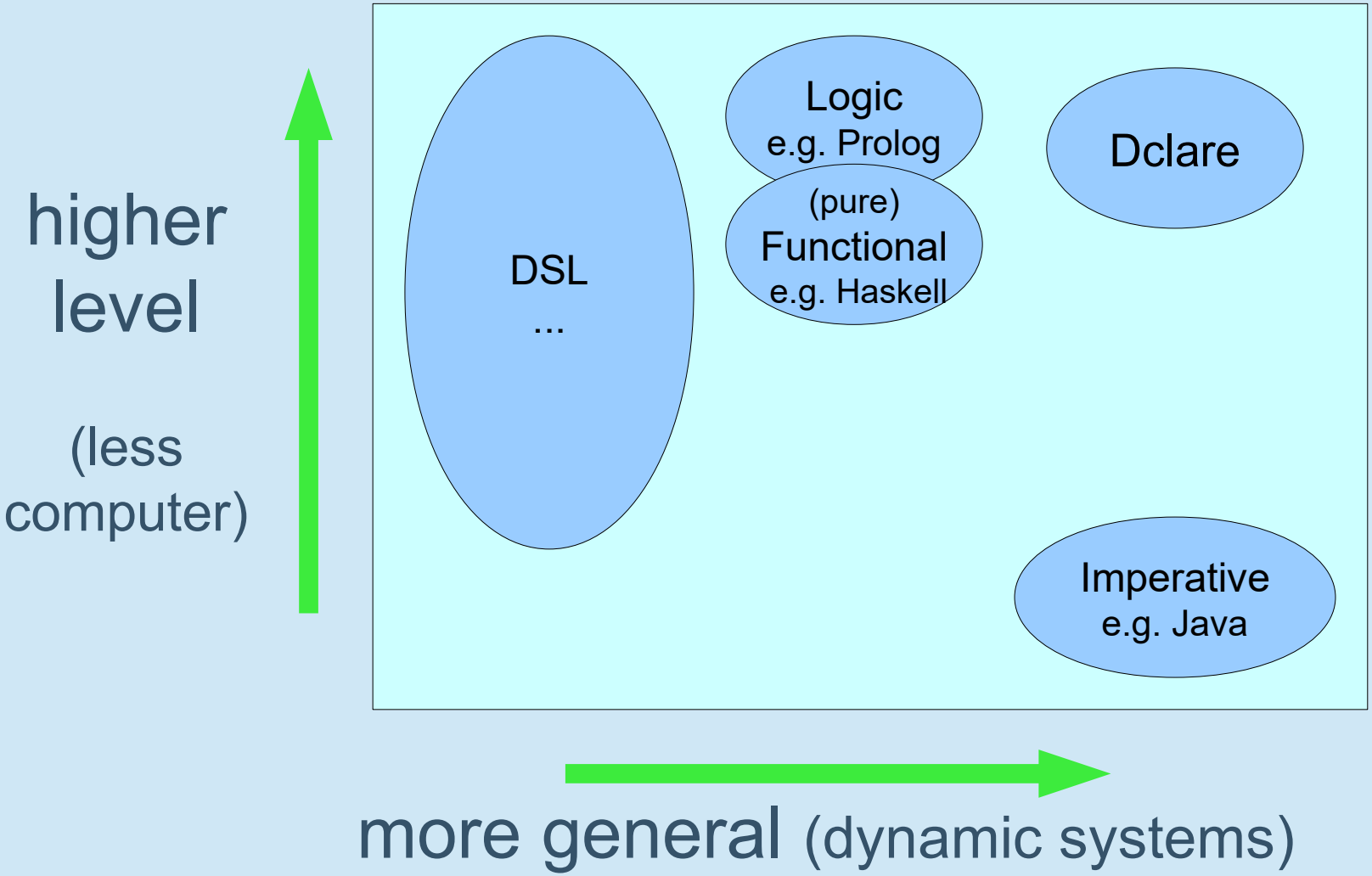
A declarative base language for MPS

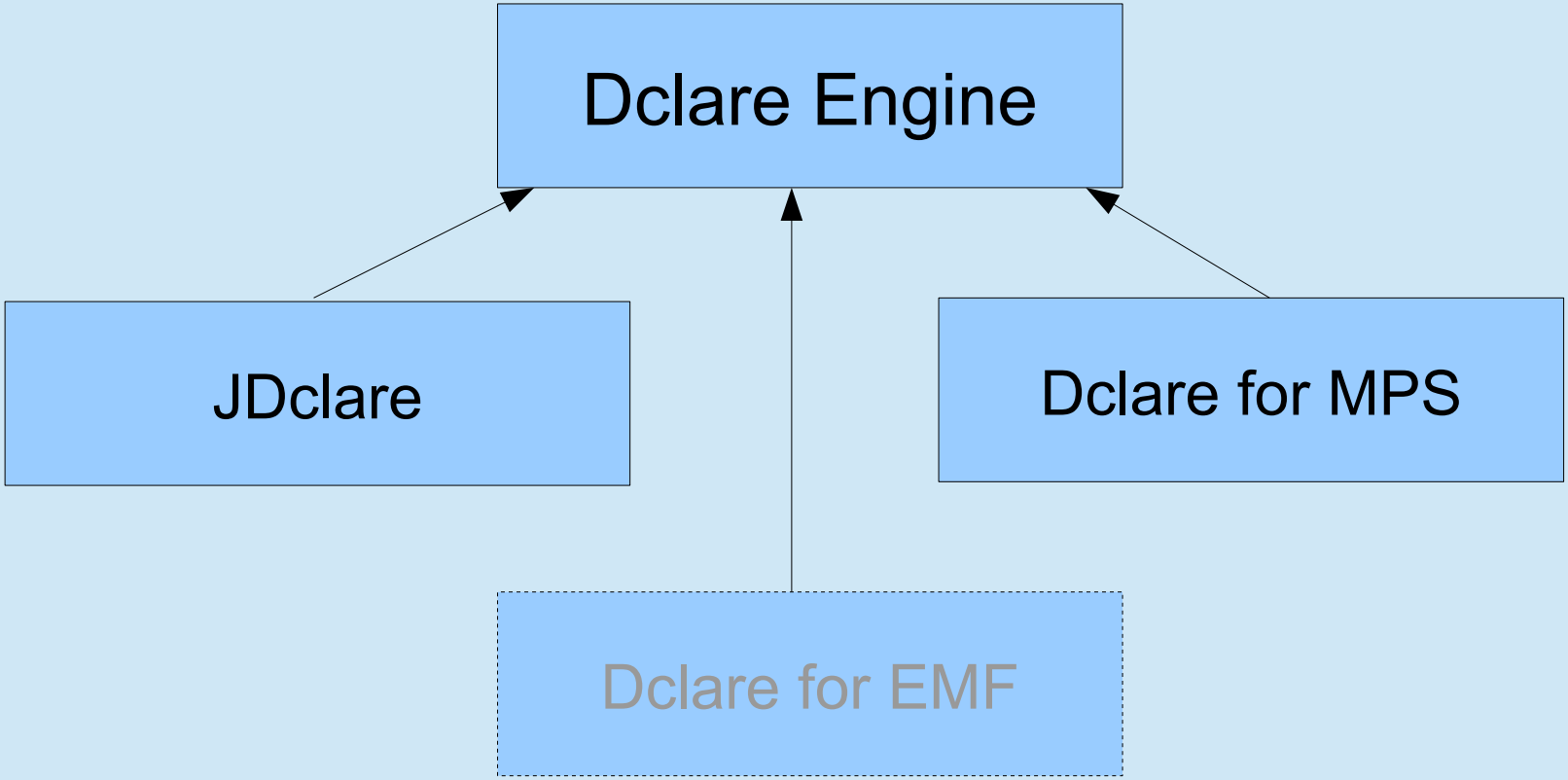
https://github.com/ModelingValueGroup/DclareForMPS

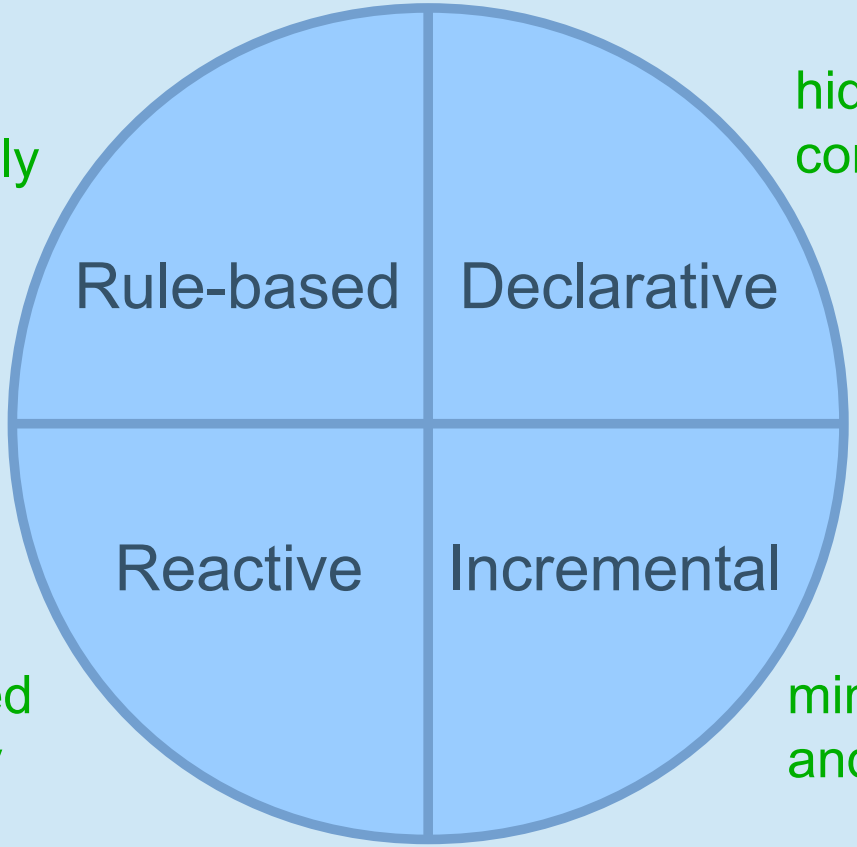
Declare

MODELING VALUE GROUP
SOFTWARE FACTORIES







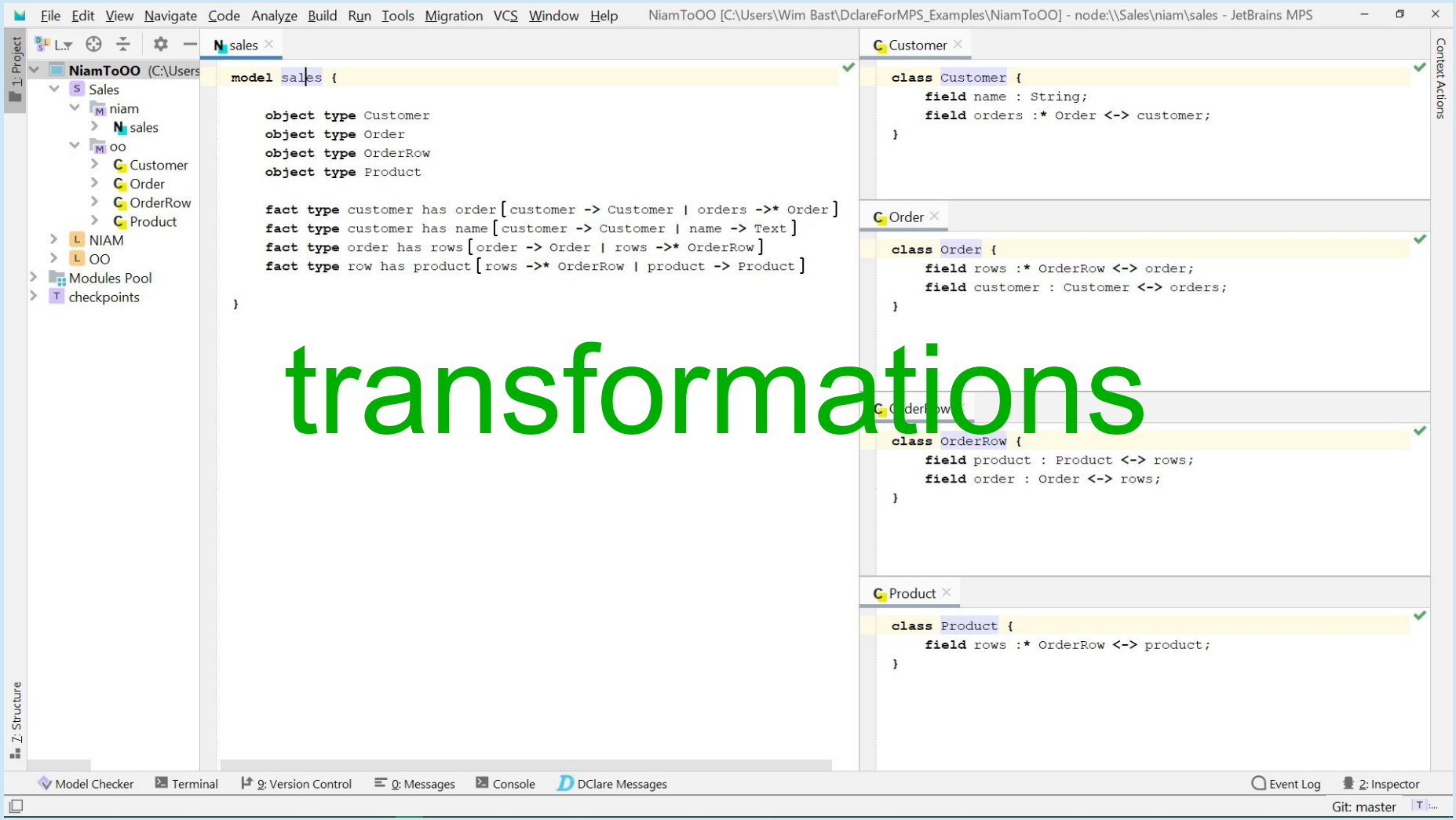


all invariants hold eventually

hides threading and control completely

rules triggered automatically

minimal triggering and changes



transformations

Declare

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CellLogic

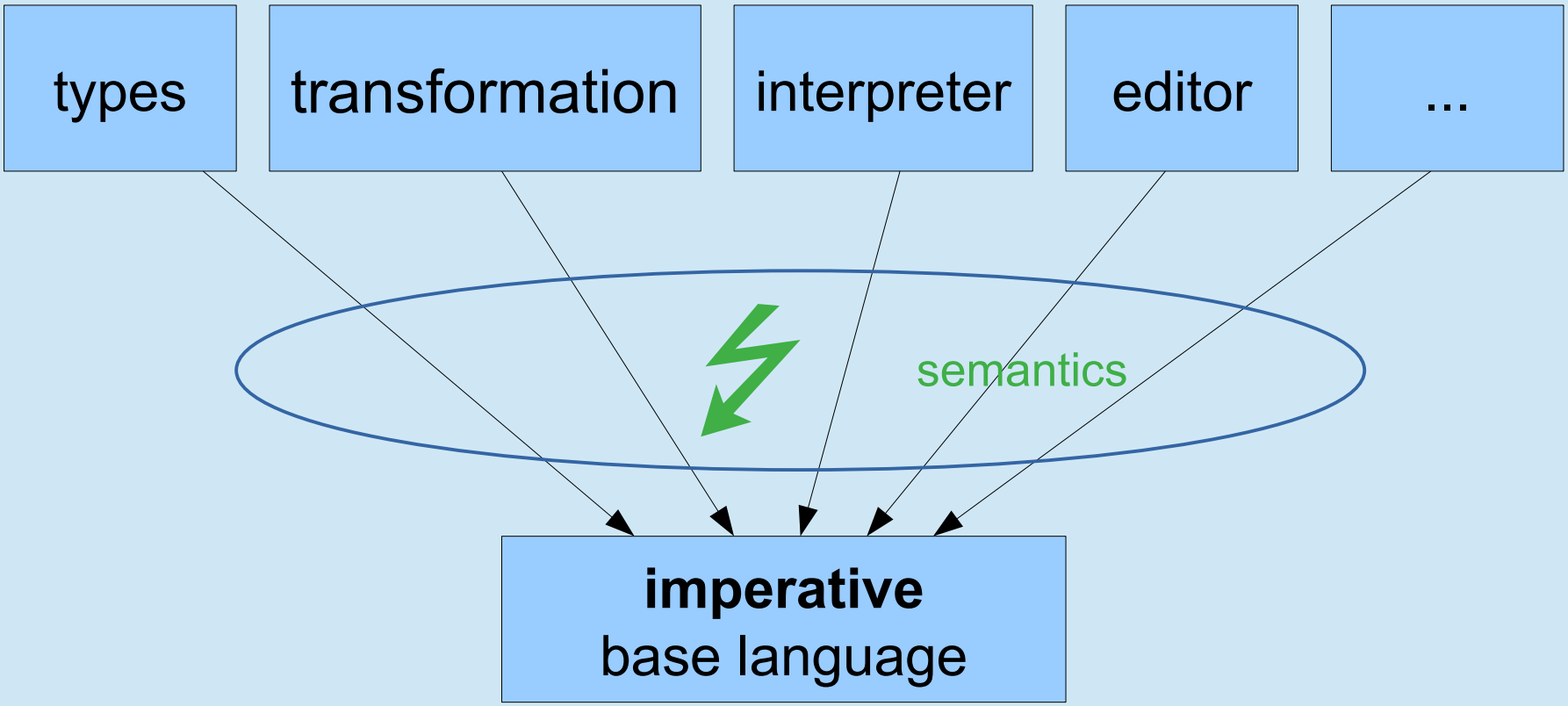
```
struct ruleset CellLogic {

  // attributes

  identifying node<Cell> cell;

  identifying list<int> filling;

  node<Sudoku> sudoku := cell.sudoku;

  list<struct<Context>> contexts := [
    sudoku.rows[cell.row],
    sudoku.columns[cell.column],
    sudoku.blocks[cell.block]];

  list<set<struct<CellLogic>>> others := contexts.select({~c =>
      c.cells.where({~c => c.cell :ne: cell && c.filling :eq: filling }).toSet });

  set<int> takenByOthers := others.selectMany({~o => o; }).where({~c => c.possible.size = 1; })
      select({~c => c.possible.first; });

  set<int> possible := cell.isSet ? new singleton<int>(cell.value) :
      possible.size != 1 ? sudoku.values.where({~v => !takenByOthers.contains(v); }) : possible;

  list<set<int>> possibleByOthers := others.select({~o => o.possible.toSet; });

  // rules

  if (possible.size > 1) {
    foreach po in possibleByOthers {
      set<int> must = possible.where({~v => !po.contains(v); }).toSet;
      if (must.isNotEmpty) {
        possible := must;
      }
    }
  }
```

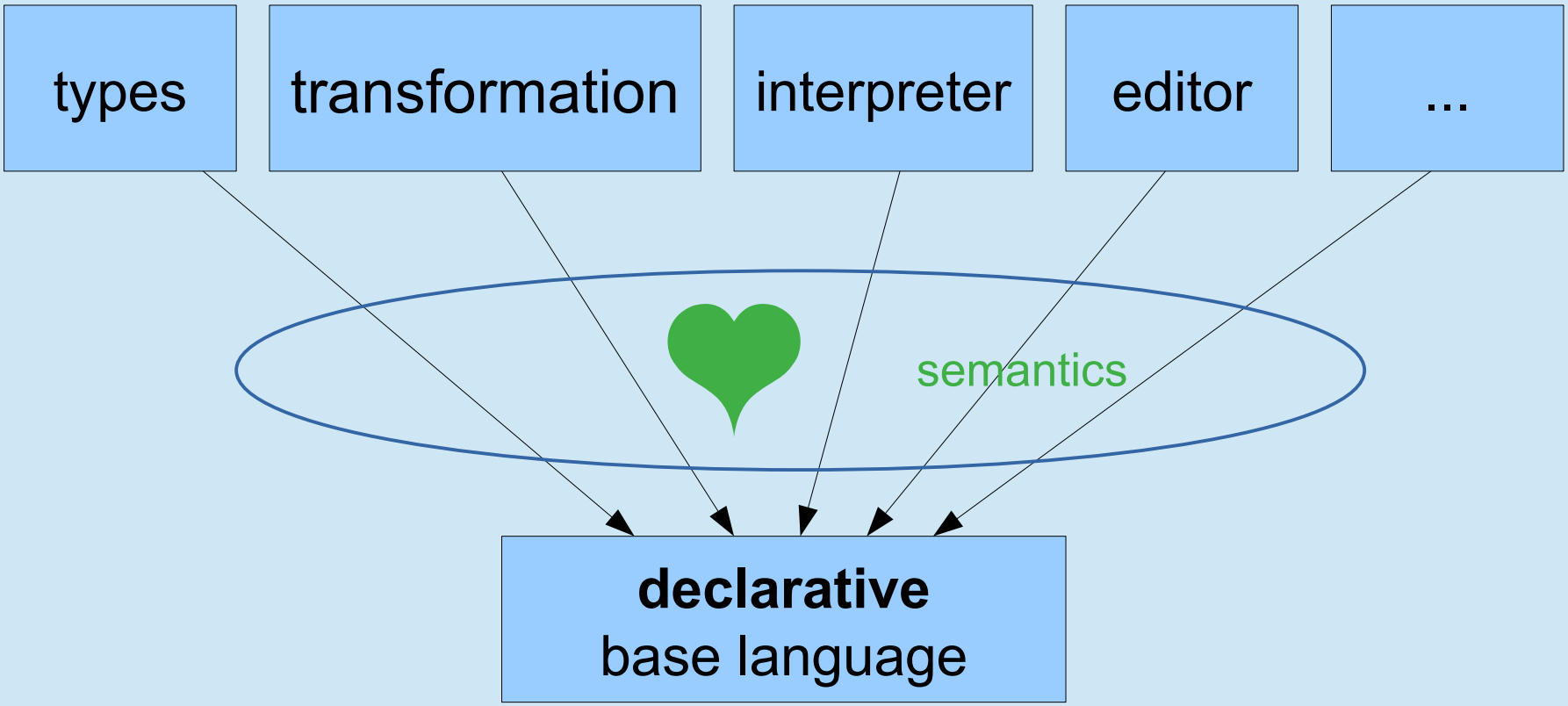
sudoku31

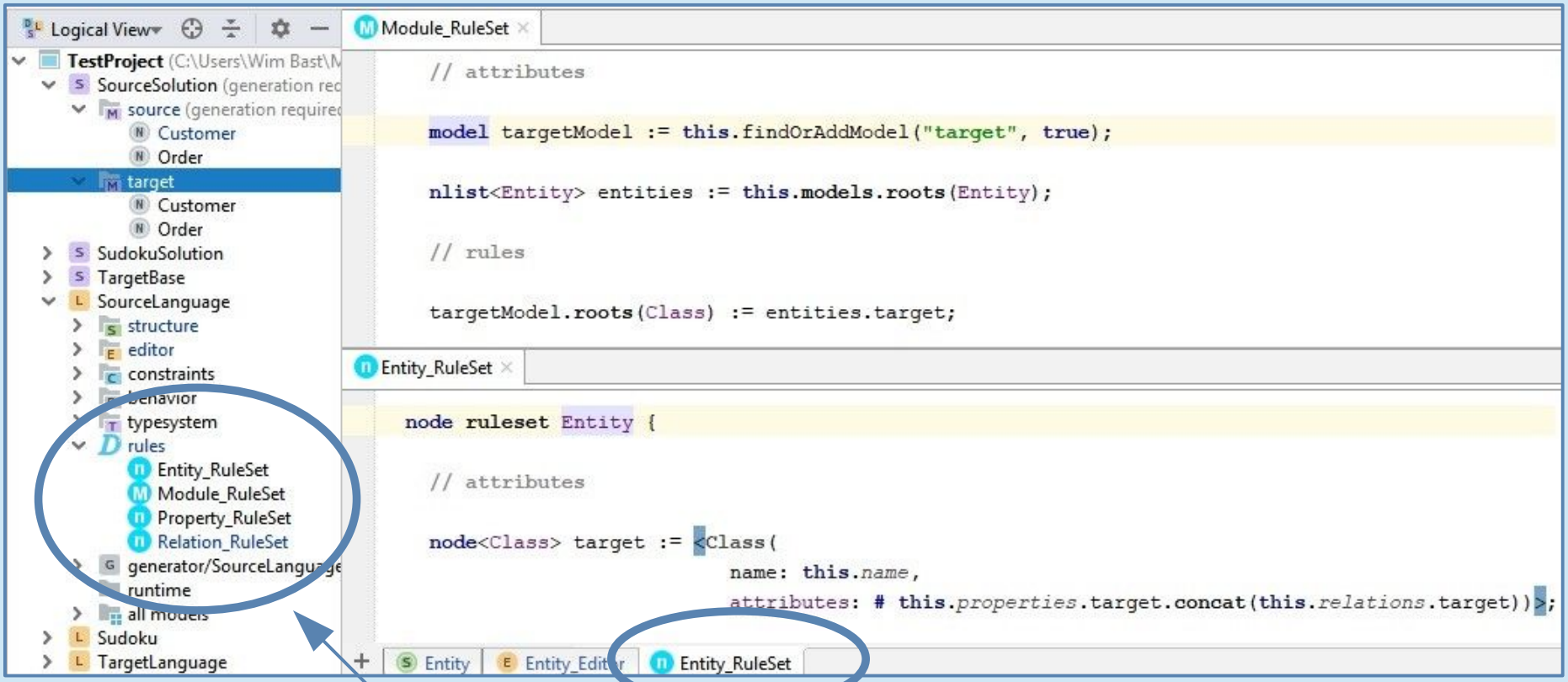
sudoku31 base size 3

5						8		
4			2		8		9	
				7		6		
		2						
	3	5			9			
6		7	5	3				
2	5	9	1	6	3	4	7	8
		4	8	9				2
		8	4			1		9

interpreters

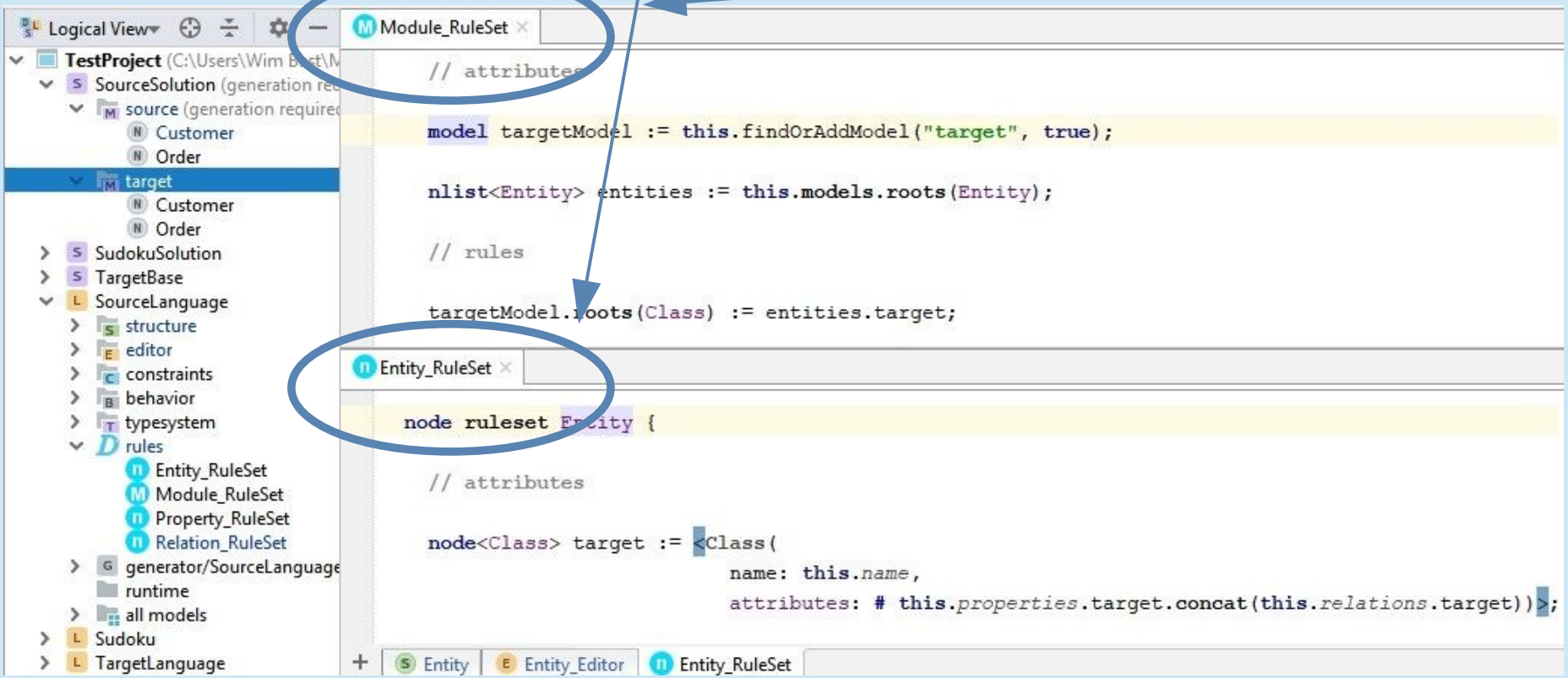




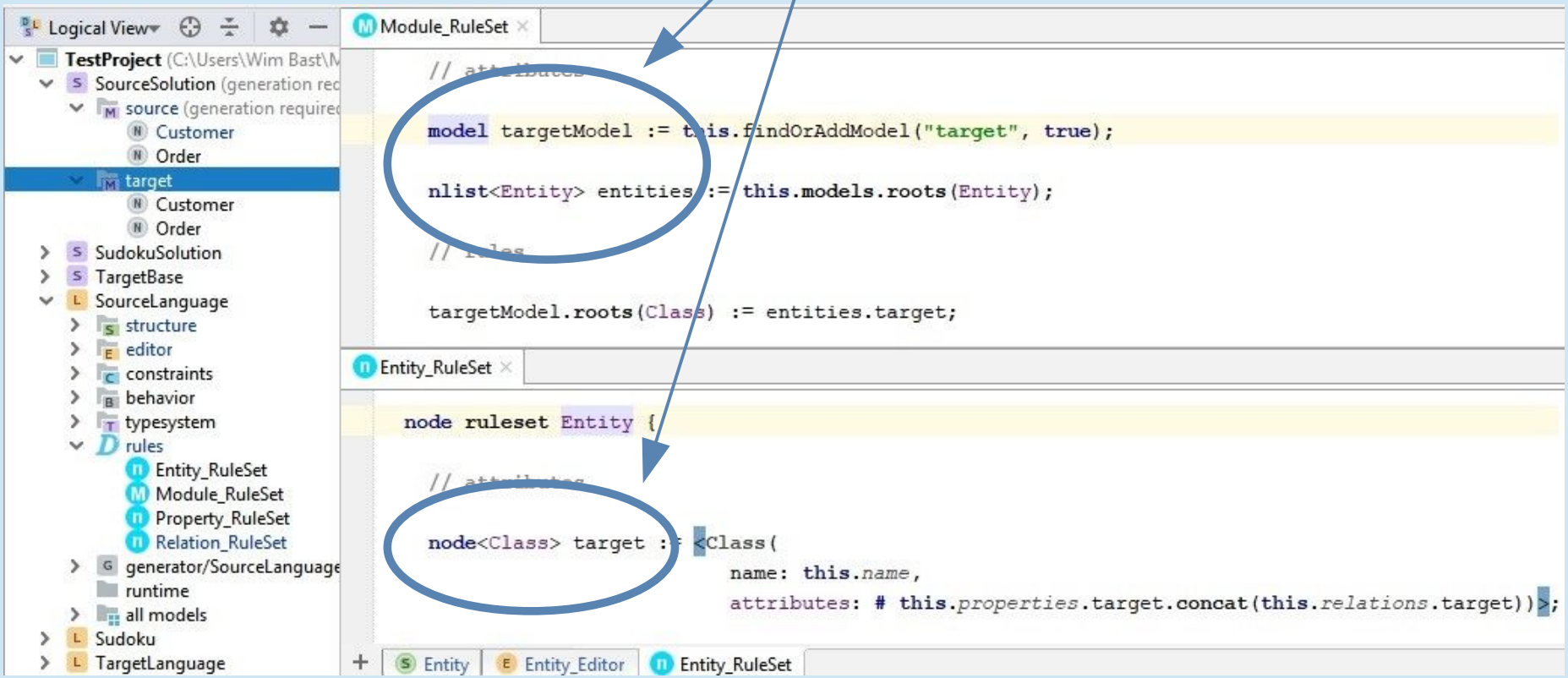


complete language aspect

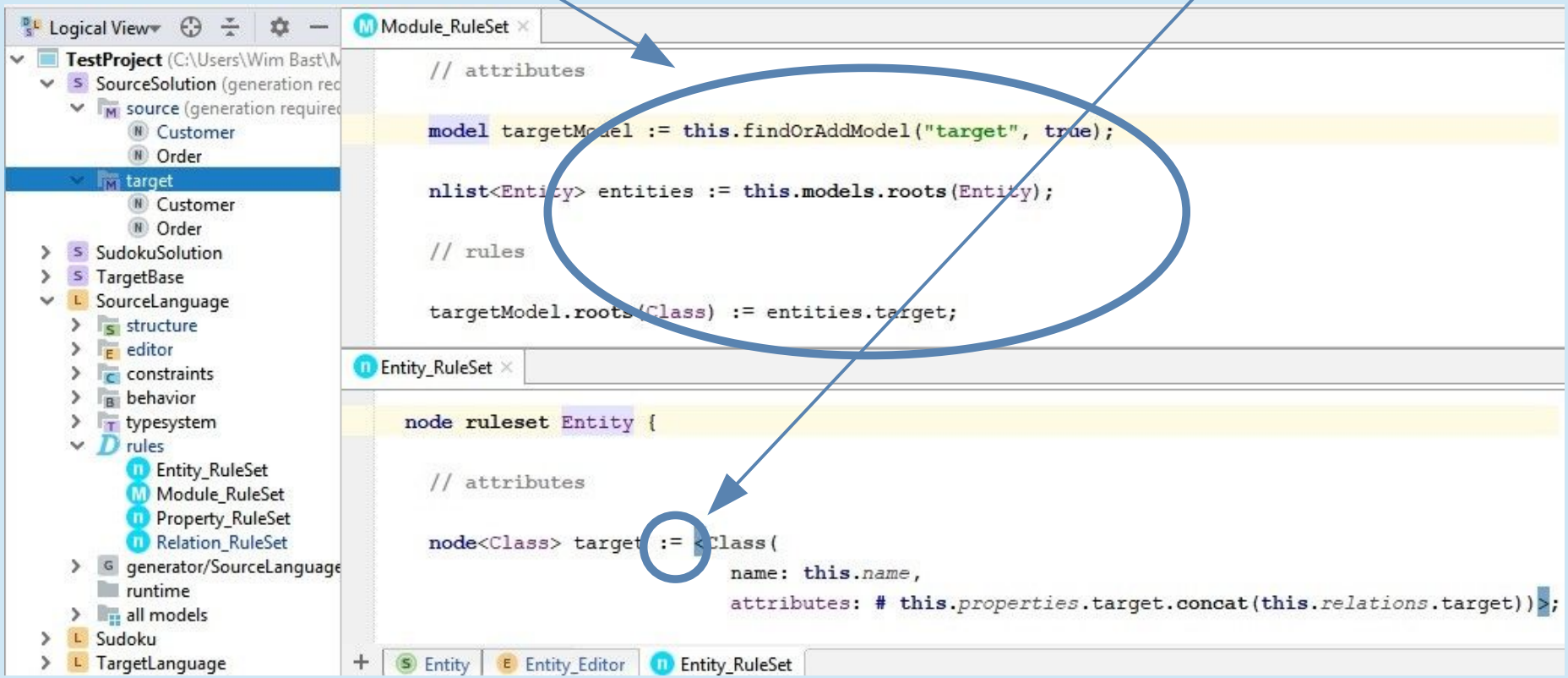
rule-sets (on nodes, models, modules, structs)

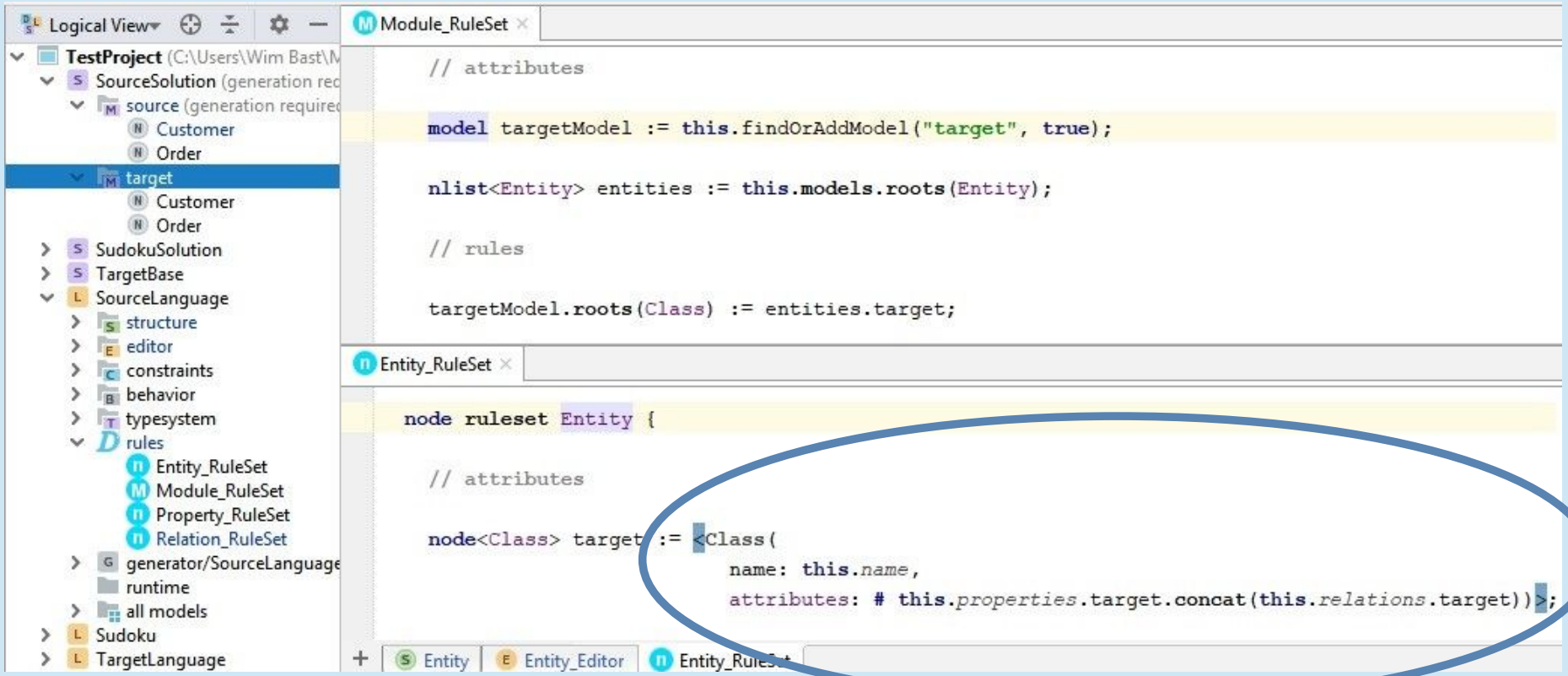


attributes of any type



Rules: base-language & equations





incremental quotations (light or not) and copy

DEMO

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Q & A

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