

# FLiP: Product Line Derivation Tool

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V. Nepomuceno, A. Menezes, V. Alves

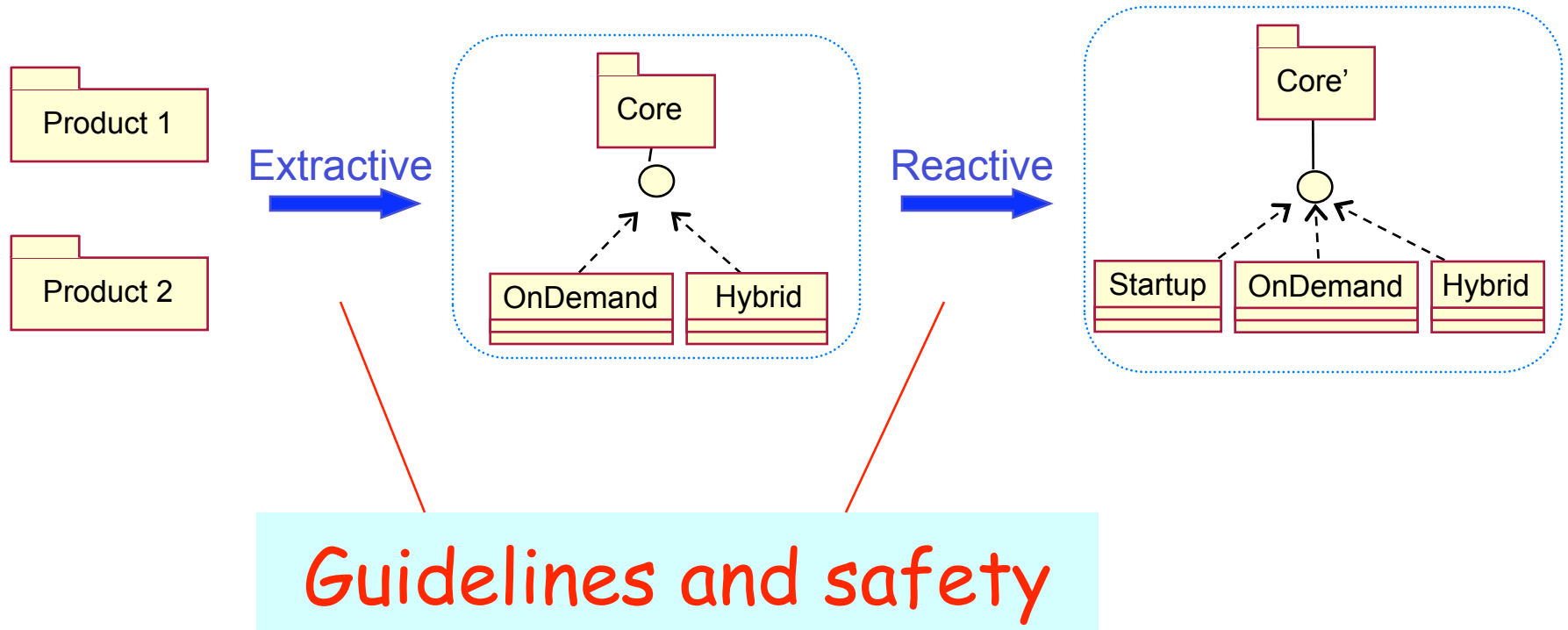
Federal University of Pernambuco  
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Meantime Mobile Creations



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# Product line derivation and evolution benefit from refactoring





# Product line extraction...



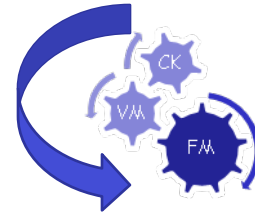
FLiP  
refactoring



aspect {  }

aspect {  }

product 1



product 1 product 2

# useful for progressive porting...



*64kb, flip*



*4Mb, flip*



*100Kb, no flip*

different devices, more than 500 builds...



# including functional variations

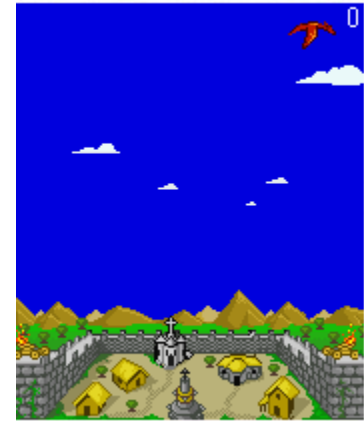


moving clouds

FLiP  
refactoring



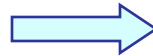
static clouds



moving clouds

# Refactoring guided extraction...

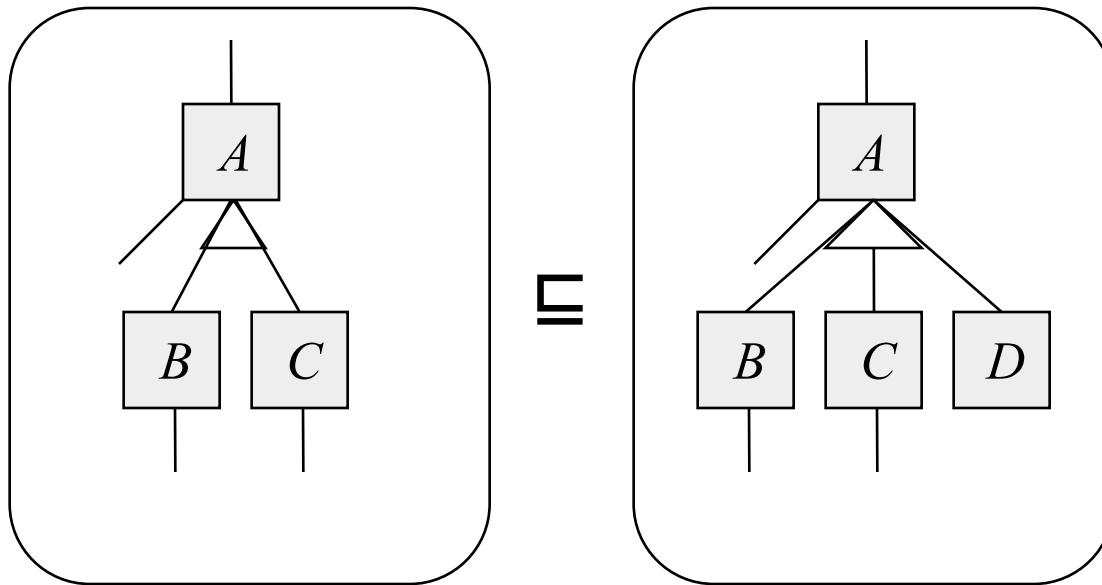
```
ts
class C {
  fs
  ms
  T' m(ps) {
    body'
    body
  }
}
```



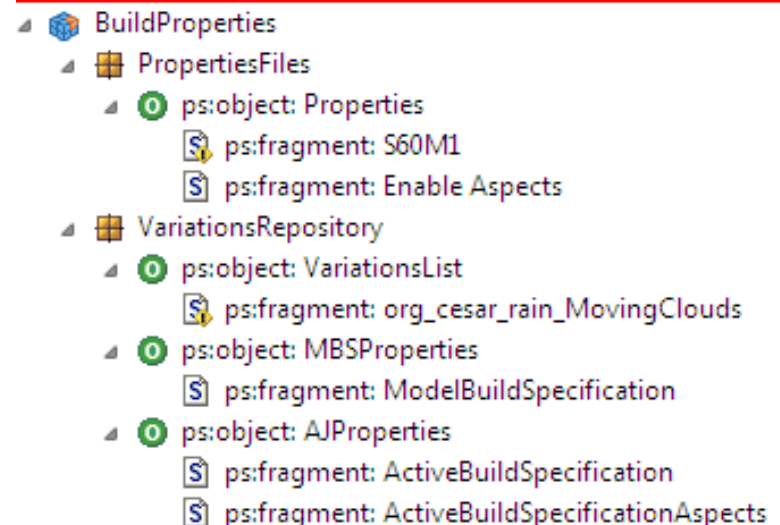
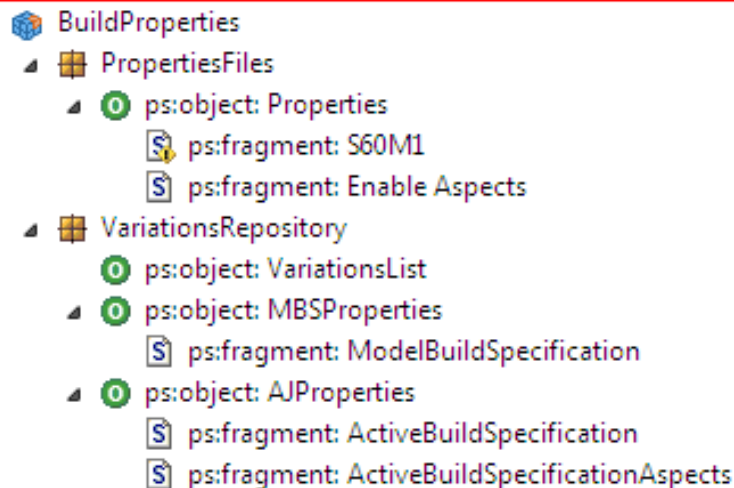
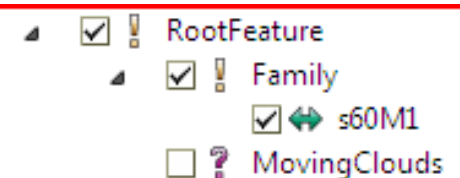
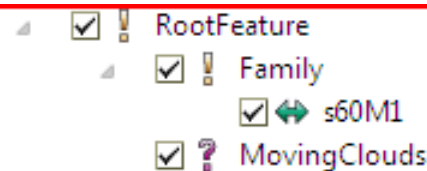
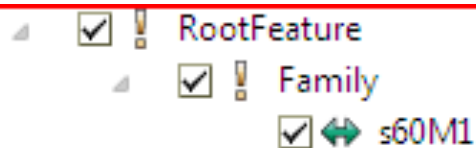
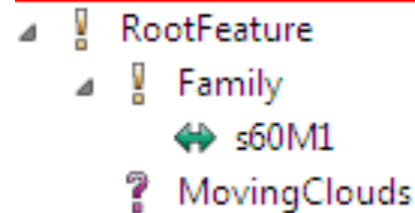
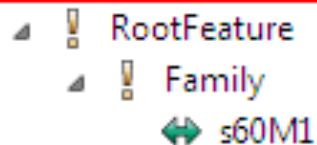
```
ts
class C {
  fs
  ms
  T' m(ps) {
    body
  }
}
privileged aspect A {
  before (context):
    execution ( $\sigma(C.m)$ )
    && bind (context) {
      body' [cthis/this]
    }
}
```

- body does not use local variables declared in body';
- there is no designator `within` or `withincode` capturing join points inside body'; ...

transforming code, feature  
model, and configuration  
knowledge...



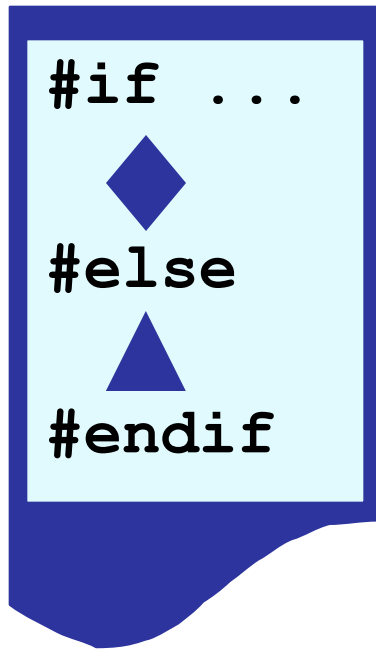
# with pure::variants models



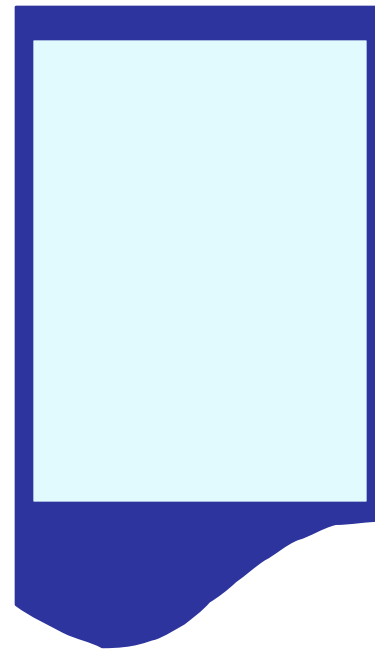



Demo, part 1


# Product line restructuring...

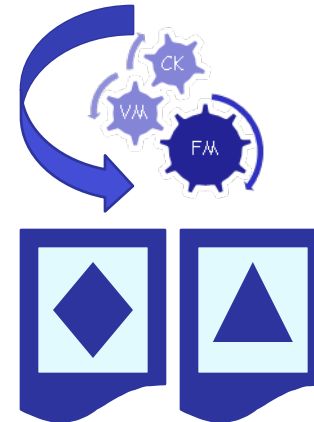
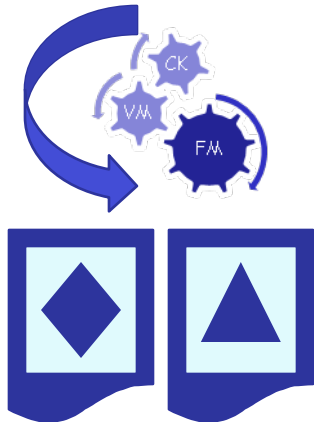


FLiP  
refactoring

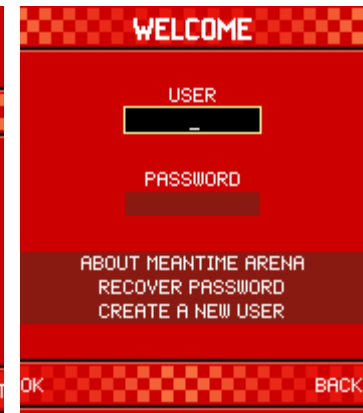
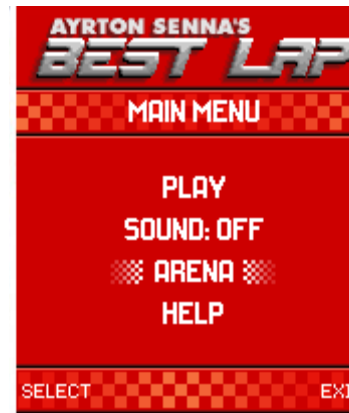
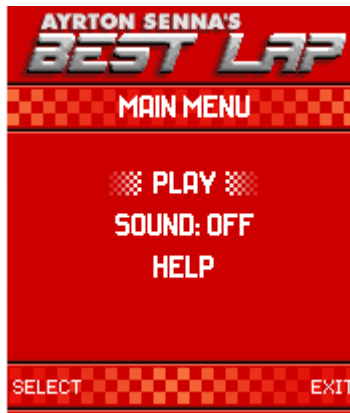


`aspect {  }`

`aspect {  }`



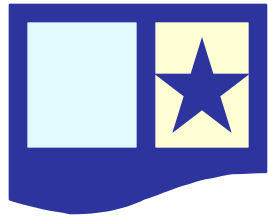
# useful for improving variation modularity...







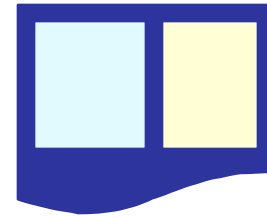
Demo, part 2


# Product line evolution...





aspect {  }


aspect {  }

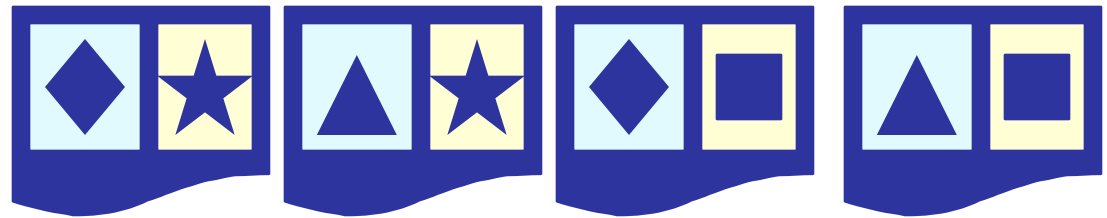
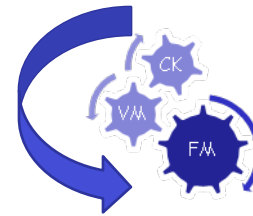
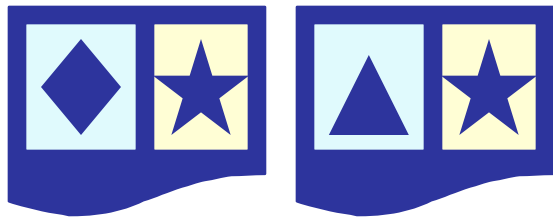
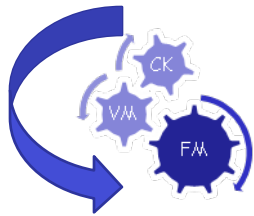


aspect {  }

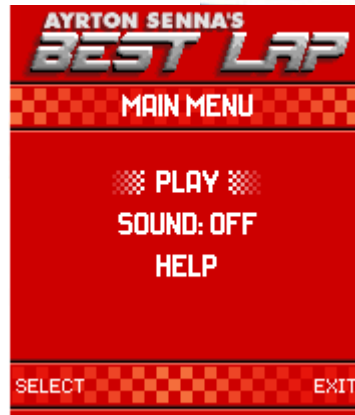
aspect {  }

aspect {  }

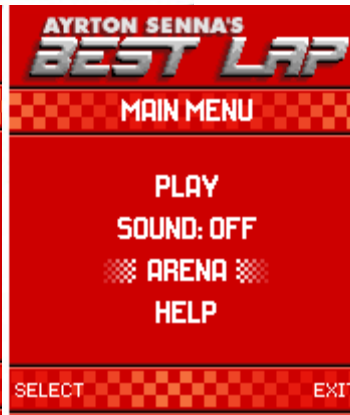
aspect {  }



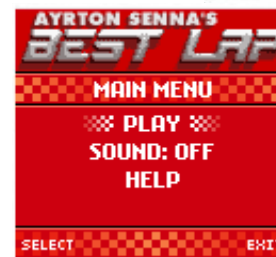
# useful for creating new variation points



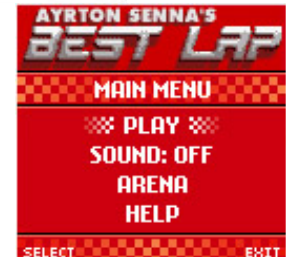
product 1



product 2



product 3



product 4

Demo, part 3



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