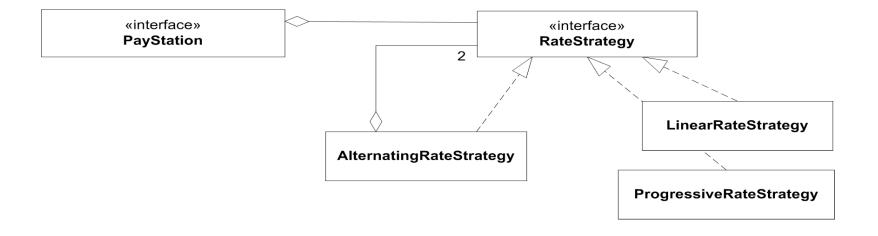


# Software Engineering and Architecture

What Patterns are ... and what not...



## Let us compare this...

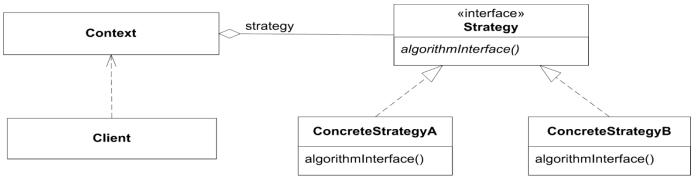


CS@AU Henrik Bærbak Christensen

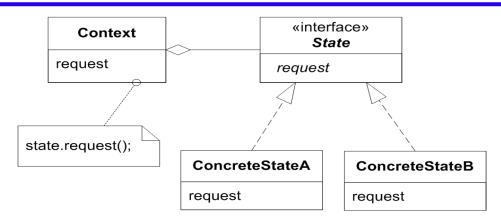


### ... with these two!

#### If these diagrams are correct, then something is wrong



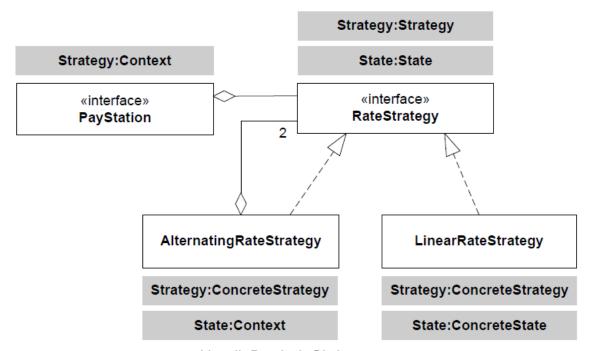
One interface named State, one named Strategy...





But...

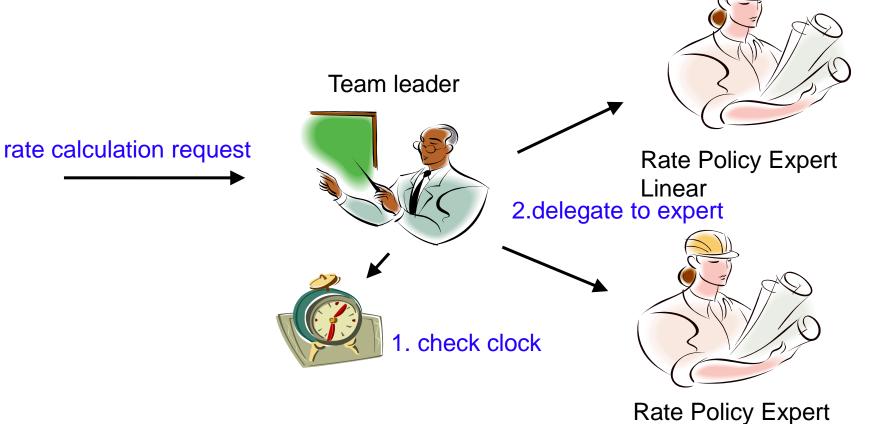
 UML diagrams cannot express roles – and patterns express roles, not classes!





## Revisiting

**Progressive** 





### The Team Leader

- The AlternatingRateStrategy instance
  - calculates rates = Concrete Strategy



Rate Policy Expert Alternating rates

– changes behaviour depending on = Context



Context for state changes

The same object plays roles in two patterns!



# **Summary**

 The essence of design patterns is at a higher level of abstraction than what you may see in e.g. UML class diagrams.

#### Definition: Design pattern (Role view)

A design pattern is defined by a set of roles, each role having a specific set of responsibilities, and by a well-defined protocol between these roles.

- You are *not* restricted by naming, method naming, classes *only* by the roles and the protocol!
- often a single abstraction plays multiple roles!