Interpreter Pattern

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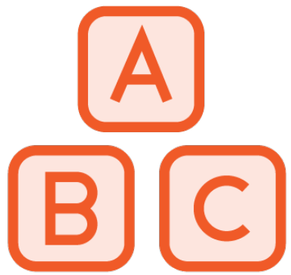
Concepts

- Represent grammar
- Interpret a sentence
- Map a domain
- AST
- Examples:
  - java.util.Pattern
  - java.text.Format



Design

AbstractExpression

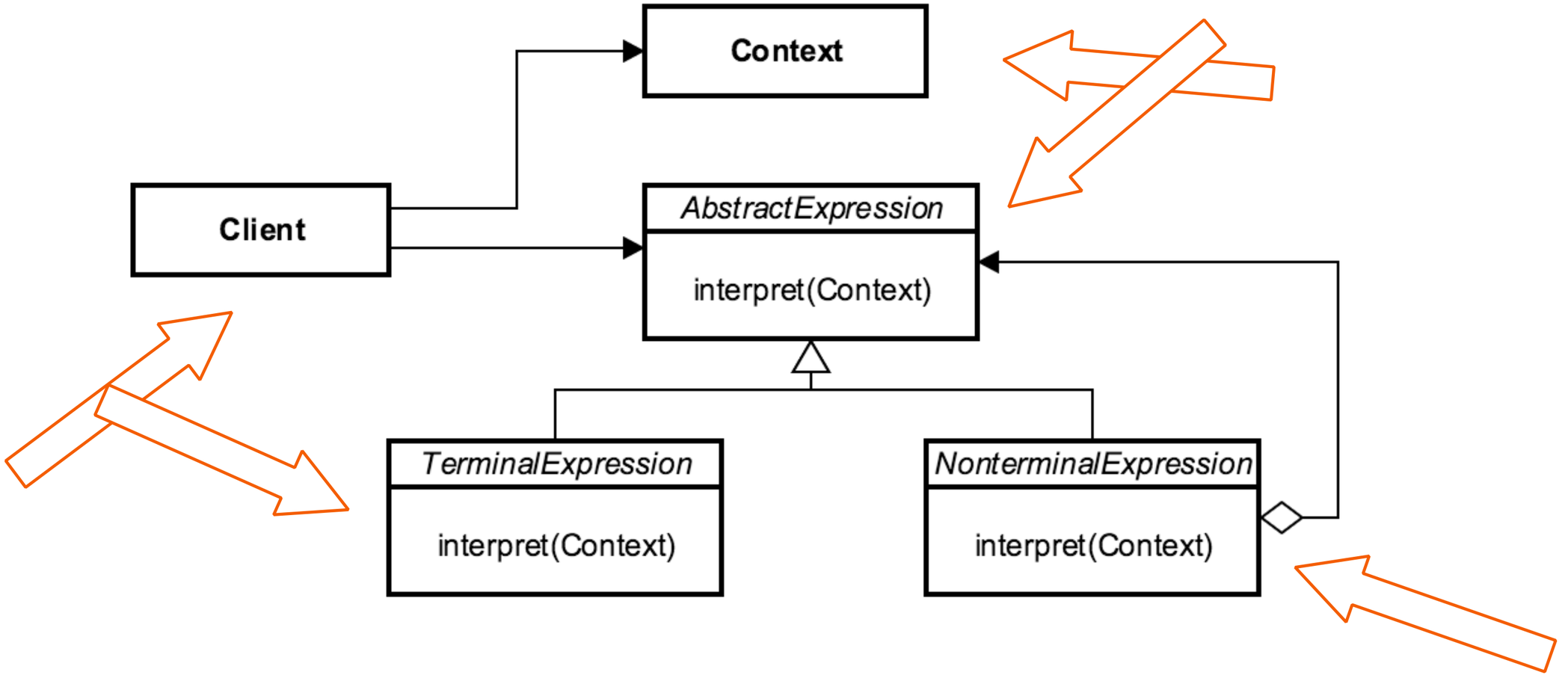
Interpret

TerminalExpression

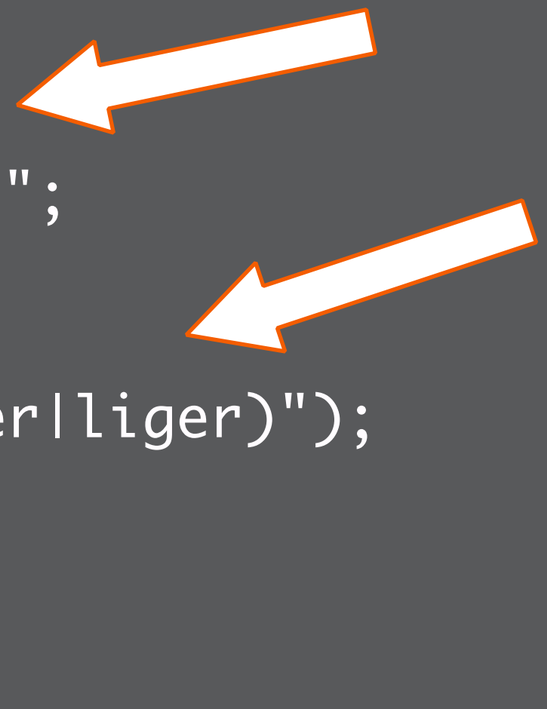
NonterminalExpression

Context, AbstractExpression, TerminalExpression, NonterminalExpression, Client

UML


Context
Client
AbstractExpression
interpret(Context)
TerminalExpression
interpret(Context)
NonterminalExpression
interpret(Context)

Everyday Example - Pattern



```
String input = "Lions, and tigers, and bears! Oh, my!";

Pattern p =
  Pattern.compile("(lion|cat|dog|wolf|bear|human|tiger|liger)");

Matcher m = p.matcher(input);

while (m.find()) {
  System.out.println("Found a " + m.group() + ".");
}
```

Exercise Interpreter

Expression, TerminalExpression,
AndExpression, OrExpression

Parse Example

Pitfalls

- Complexity
- Class per rule
- Use of other patterns
- Adding new variant
- Specific case

Contrast

Interpreter

- Access to properties
- Function as methods
- Adding new functionality changes every variant

Visitor

- Needs Observer functionality
- Functionality found in one place
- Adding new variant requires changing every visitor

Interpreter Summary

- Define a grammar
- Rules or Validation
- Special case pattern
- Consider the Visitor