

```
1 class Expr
2   begin
3     instance
4       int kind, priority;
5       □char operator;
6       Expr left, right;
7       Expr init(
8         int kind, priority;
9         □char operator;
10        Expr left, right;
11      )
12      begin
13        this.kind = kind;
14        this.priority = priority;
15        this.operator = operator;
16        this.left = left;
17        this.right = right;
18        return this;
19      end
20    end
21
22  int IDENT = 1, BIN = 2;
23
24  void parenth(
25    int level, priority; Expr expr; var □char result; )
26    begin
27      □char result1;
28      toString( level + 1, expr, result1 );
29      if expr.priority < priority then
30        result = "(" + result1 + ")";
31      else
32        result = result1;
33      end
34    end
35
36  void toString( int level; Expr expr; var □char result; )
37    begin
38      □char left, right;
39      if expr.kind == IDENT then
40        result = expr.operator;
41      elif expr.kind == BIN then
42        parenth( level + 1, expr.priority, expr.left, left );
43        parenth( level + 1, expr.priority+1, expr.right, right );
44        result = left + expr.operator + right;
45      end
46    end
47
48  Expr expr1 = new Expr.init( IDENT, 3, "a", null, null );
49  Expr expr2 = new Expr.init( IDENT, 3, "b", null, null );
50  Expr expr3 = new Expr.init( IDENT, 3, "c", null, null );
51  Expr expr4 = new Expr.init( BIN, 1, "+", expr1, expr2 );
52  Expr expr = new Expr.init( BIN, 2, "*", expr4, expr3 );
53  □char result = null;
54  toString( 1, expr, result );
55  println( result );
56
```