

## 第七章作业

### 8. 按题目要求翻译布尔式的语义动作。

分析：每个非终结符有2个属性，分别为 truelist 和 falselist，分别对应逻辑值为真和逻辑值为假时链接的代码

根据题目要求，可对布尔式进行如下改写：

- 1)  $E \rightarrow id$       {  $E.truelist = \text{Null};$   
                          $E.falselist = \text{nextquad};$   
                          $\text{emit}(j, \text{ez}, id.place, -, 0);$  }
- 2)  $E \rightarrow id_1 \text{ relop } id_2$       {  $E.truelist = \text{Null};$   
    $E.falselist = \text{nextquad};$   
    $\text{emit}(j, \text{not relop}, id_1.place, id_2.place, 0);$  }
- 3)  $E \rightarrow (E_1)$       {  $E.truelist = E_1.truelist;$   
                                  $E.falselist = E_1.falselist;$   
                                 }
- 4)  $E \rightarrow \neg E_1$       {  $E.falselist = \text{nextquad};$   
                                  $\text{emit}(j, -, -, 0);$       // 等代之后回填  $E.falselist$   
                                  $\text{Backpatch}(E_1.falselist, \text{nextquad});$  }
- 5)  $E_2 \rightarrow E_1 \wedge$       {  $E_2.falselist = E_1.falselist;$  }
- 6)  $E \rightarrow E_2 E_3$       {  $E.truelist = E_3.truelist;$   
                                  $E.falselist = \text{merge}(E_2.falselist, E_3.falselist);$   
                                 // 合并等代需要回填的链表  
                                 }
- 7)  $E_4 \rightarrow E_1 \vee$       {  $E_1.truelist = \text{nextquad};$       // 为真则自动下滑  
                                  $\text{emit}(j, -, -, 0);$       // 不为后有或运算符 此语不可省  
                                  $\text{Backpatch}(E_1.falselist, \text{nextquad});$   
                                 }

18)  $E \rightarrow E_4 E_3$      $\{ E.\text{falselist} = E_3.\text{falselist}; // \text{更新 } E \text{ 为假时, 需要跳}$   
Backpatch( $E_4, \text{truelist}, \text{nextquad}$ );  $\}$  转的地址