在语法分析阶段，发现了原先的测试程序的一些错误，改进后的测试程序如下：

1. **const** **int** con\_int1 = +1, con\_int2 = -1 , con\_int3 = 34,con\_int4 = 10;
2. **const** **char** con\_ch4 = 'A';
4. **int** index , var\_arr[10] , bigger\_input;
5. **char** var\_arr\_ch[10];
7. **int** find\_bigger(**int** a, **int** b)
8. {
9. **if**(a >= b)
10. **return**(a);
11. **return**(find\_bigger(a+1,b));
12. }
14. **void** print\_bigger()
15. {
16. printf("The bigger number is ",bigger\_input);
17. }
19. **void** relation(**int** a,**int** b)
20. {
21. **const** **int** sml\_eql = 0, bgr\_eql = 1;
23. **int** re;
25. **if**(a <= b)
26. {
27. re = sml\_eql;
28. printf("input3 is smaller OR equal than input4");
29. }
30. **if**(a >= b)
31. {
32. re = bgr\_eql;
33. printf("input3 is bigger OR equal than input4");
34. }
35. **if**(a != b)
36. {
37. ;
38. }
39. **if**(a == b)
40. {
41. printf("input3 is equal to input4");
42. }
43. **switch**(re)
44. {
45. **case** 0:
46. {
47. **if**(a < b)
48. {
49. printf("input3 is smaller than input4");
50. }
51. }
52. **case** 1:
53. {
54. **if**(a > b)
55. {
56. printf("input3 is bigger than input4");
57. }
58. }
59. }
60. }
62. **void** main()
63. {
64. **int** input1,input2;
65. **int** input3,input4;
67. scanf(input1,input2);
68. scanf(input3,input4);
70. index = 0;
71. bigger\_input = find\_bigger(input1,input2);
72. print\_bigger();
74. relation(input3,input4);
76. printf(-input3 + input4 \* (input3 /-1) \* 'a' + find\_bigger(input3,input4) \* 7 );
78. **do**
79. {
80. var\_arr[index] = index\*2 + 1;
81. var\_arr\_ch[index] = con\_ch4 + index;
82. printf(var\_arr[index] );
83. printf(var\_arr\_ch[index]);
84. index = index + 1;
86. }**while**(index < con\_int4)
87. }

采用递归子程序法实现语法分析程序，语法的主要代码放置在syntax.cpp中，运行后在控制台输出如下：

This is integer in line 1

This is integer in line 1

This is integer in line 1

This is integer in line 1

This is const define! in line 1

This is const define! in line 2

This is var define! in line 4

This is var define! in line 5

This paratable! in line 7

This is factor in line 9

This term! in line 9

This expression! in line 9

This is factor in line 9

This term! in line 9

This expression! in line 9

This is condition in line 9

This is factor in line 10

This term! in line 10

This expression! in line 10

This is return statement in line 10

This is conditional statement! in line 11

This is factor in line 11

This term! in line 11

This is integer in line 11

This is factor in line 11

This term! in line 11

This expression! in line 11

This is factor in line 11

This term! in line 11

This expression! in line 11

This function call! in line 11

This is factor in line 11

This term! in line 11

This expression! in line 11

This is return statement in line 11

This is statementlist! in line 12

This is function define! in line 12

This paratable! in line 14

This is factor in line 16

This term! in line 16

This expression! in line 16

This is write statement！ in line 16

This is statementlist! in line 17

This is function define! in line 17

This paratable! in line 19

This is integer in line 21

This is integer in line 21

This is const define! in line 21

This is var define! in line 23

This is factor in line 25

This term! in line 25

This expression! in line 25

This is factor in line 25

This term! in line 25

This expression! in line 25

This is condition in line 25

This is factor in line 27

This term! in line 27

This expression! in line 27

This is assign satement in line 27

This is write statement！ in line 28

This is statementlist! in line 29

This is conditional statement! in line 30

This is factor in line 30

This term! in line 30

This expression! in line 30

This is factor in line 30

This term! in line 30

This expression! in line 30

This is condition in line 30

This is factor in line 32

This term! in line 32

This expression! in line 32

This is assign satement in line 32

This is write statement！ in line 33

This is statementlist! in line 34

This is conditional statement! in line 35

This is factor in line 35

This term! in line 35

This expression! in line 35

This is factor in line 35

This term! in line 35

This expression! in line 35

This is condition in line 35

This is statementlist! in line 38

This is conditional statement! in line 39

This is factor in line 39

This term! in line 39

This expression! in line 39

This is factor in line 39

This term! in line 39

This expression! in line 39

This is condition in line 39

This is write statement！ in line 41

This is statementlist! in line 42

This is conditional statement! in line 43

This is factor in line 43

This term! in line 43

This expression! in line 43

This is factor in line 47

This term! in line 47

This expression! in line 47

This is factor in line 47

This term! in line 47

This expression! in line 47

This is condition in line 47

This is write statement！ in line 49

This is statementlist! in line 50

This is conditional statement! in line 51

This is statementlist! in line 51

This is one of case table in line 52

This is factor in line 54

This term! in line 54

This expression! in line 54

This is factor in line 54

This term! in line 54

This expression! in line 54

This is condition in line 54

This is write statement！ in line 56

This is statementlist! in line 57

This is conditional statement! in line 58

This is statementlist! in line 58

This is one of case table in line 59

This is case statement in line 60

This is statementlist! in line 60

This is function define! in line 60

This is var define! in line 64

This is var define! in line 65

This is read statement in line 67

This is read statement in line 68

This is integer in line 70

This is factor in line 70

This term! in line 70

This expression! in line 70

This is assign satement in line 70

This is factor in line 71

This term! in line 71

This expression! in line 71

This is factor in line 71

This term! in line 71

This expression! in line 71

This function call! in line 71

This is factor in line 71

This term! in line 71

This expression! in line 71

This is assign satement in line 71

This function call! in line 72

This is factor in line 74

This term! in line 74

This expression! in line 74

This is factor in line 74

This term! in line 74

This expression! in line 74

This function call! in line 74

This is factor in line 76

This term! in line 76

This is factor in line 76

This is factor in line 76

This is integer in line 76

This is factor in line 76

This term! in line 76

This expression! in line 76

This is factor in line 76

This is factor in line 76

This term! in line 76

This is factor in line 76

This term! in line 76

This expression! in line 76

This is factor in line 76

This term! in line 76

This expression! in line 76

This function call! in line 76

This is factor in line 76

This is integer in line 76

This is factor in line 76

This term! in line 76

This expression! in line 76

This is write statement！ in line 76

This is enter loop statement in line 78

This is factor in line 80

This term! in line 80

This expression! in line 80

This is factor in line 80

This is integer in line 80

This is factor in line 80

This term! in line 80

This is integer in line 80

This is factor in line 80

This term! in line 80

This expression! in line 80

This is array assign statement in line 80

This is factor in line 81

This term! in line 81

This expression! in line 81

This is factor in line 81

This term! in line 81

This is factor in line 81

This term! in line 81

This expression! in line 81

This is array assign statement in line 81

This is factor in line 82

This term! in line 82

This expression! in line 82

This is factor in line 82

This term! in line 82

This expression! in line 82

This is write statement！ in line 82

This is factor in line 83

This term! in line 83

This expression! in line 83

This is factor in line 83

This term! in line 83

This expression! in line 83

This is write statement！ in line 83

This is factor in line 84

This term! in line 84

This is integer in line 84

This is factor in line 84

This term! in line 84

This expression! in line 84

This is assign satement in line 84

This is statementlist! in line 86

This is factor in line 86

This term! in line 86

This expression! in line 86

This is factor in line 86

This term! in line 86

This expression! in line 86

This is condition in line 86

This is loop statement in line 87

This is statementlist! in line 87

This main function! in line 87

输出的形式为“语法结构+行数”，其中标识符，字符，复合语句这样的语法成分未做输出处理，具有输出能力的语法结构有：

<整数>，

<常量定义>（常量声明未单独输出，已与常量定义合并），

<函数定义>（有返回值函数何物返回函数都包括），

<主函数>，

<变量定义>（变量声明未单独输出，与变量定义合并），

<参数表>，

<函数调用>（两类函数调用的合并），

<表达式>，<项>，<因子>，

<语句列>，

<条件>，<条件语句>，

<循环语句>，

<情况语句>，<情况表>，

<赋值语句>，

<读语句>，

<写语句>，

<返回语句>

从输出可见，符合预期。