编译原理 第9次作业

Exercise 9.1

- Let **A** be declared as a [2..4] x [1..5] array of integers and each integer occupy 4 bytes. What is the translation result of input token string: **x := A[3, 2]**?
  - Tips: use the translation scheme for Pascal.

解：由题可知，A为3*5的数组.

$$
\begin{aligned}
t1 &= 3 * 5 \\
t1 &= t1 + 2 \\
t2 &= c \qquad (\text{常数}\, c = base_A - 44) \\
t3 &= 4 * t1 \\
t4 &= t2[t3] \\
x &= t4
\end{aligned}
$$

Exercise 9.2

- Let **a** be declared as a 5 x 6 array of integers and each integer occupy 4 bytes. What is the translation result of input token string: **i = a[3][2]**?
  - Tips: use the translation scheme for C/C++.

解：由题可知，a为5*6的数组.

$$
\begin{aligned}
t1 &= 3 * 24 \\
t2 &= 2 * 4 \\
t3 &= t1 + t2 \\
t4 &= a\,[\,t3\,] \\
i &= t4
\end{aligned}
$$

Exercise 9.3

- What is the translation result of input token string: **x < 100 || x > 200 && x != y**?
  - Tips: use the translation scheme for boolean expressions with backpatching.
  - Suppose that the start position of the generated code is 100.

解:

$$
\begin{aligned}
100: &\ \ if\ x < 100\ \ goto\ \_ \\
101: &\ \ goto\ 102 \\
102: &\ \ if\ x > 200\ \ goto\ \ 104 \\
103: &\ \ goto\ \_ \\
104: &\ \ if\ x != y\ \ goto\ \ \_ \\
105: &\ \ goto\ \ \_
\end{aligned}
$$