串

KMP算法：查询表

13-C2

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好记性不如烂笔头

t：事先确定

❖ 不仅可以事先确定，而且仅根据P即可确定

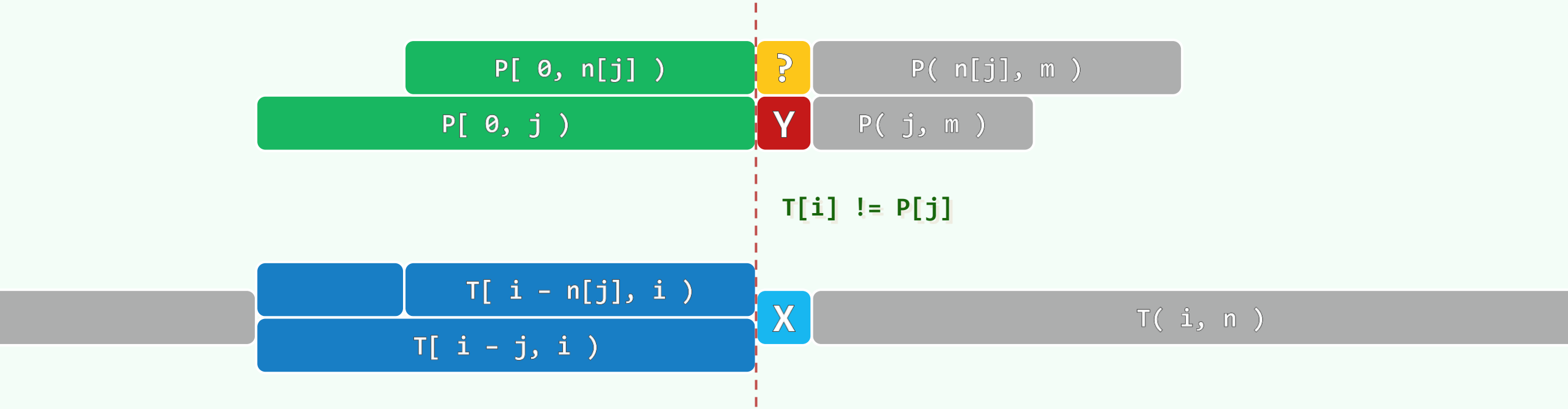
（依赖于P[0,j) = T[i-j,i)）

❖ 而失败位置P[j]，无非m种情况

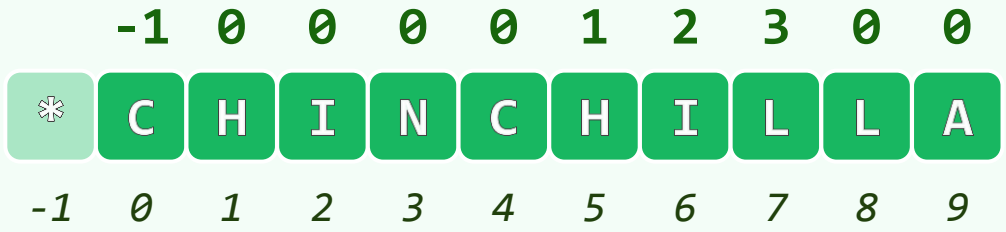
❖ 构造查询表next[0,m)，做好预案

❖ 一旦在P[j]处失配，只需

将j替换为next[j]，继续与T[i]比对



实例


-1 0 0 0 0 1 2 3 0 0
* C H I N C H I L L A
-1 0 1 2 3 4 5 6 7 8 9

* C H I N C H I L L A
C H I N C H I L L A
C H I N C H I L L A
C H I N C H I L L A
C H I N C H I X

KMP算法

```
❖int match( char * P, char * T ) {
    int * next = buildNext(P);
    int n = (int) strlen(T), i = 0;
    int m = (int) strlen(P), j = 0;
    while ( j < m && i < n )
       if ( 0 > j || T[i] == P[j] ) {
          i ++;  j ++;
       } else
          j = next[j];
    delete [] next;
    return i - j;
 }
```

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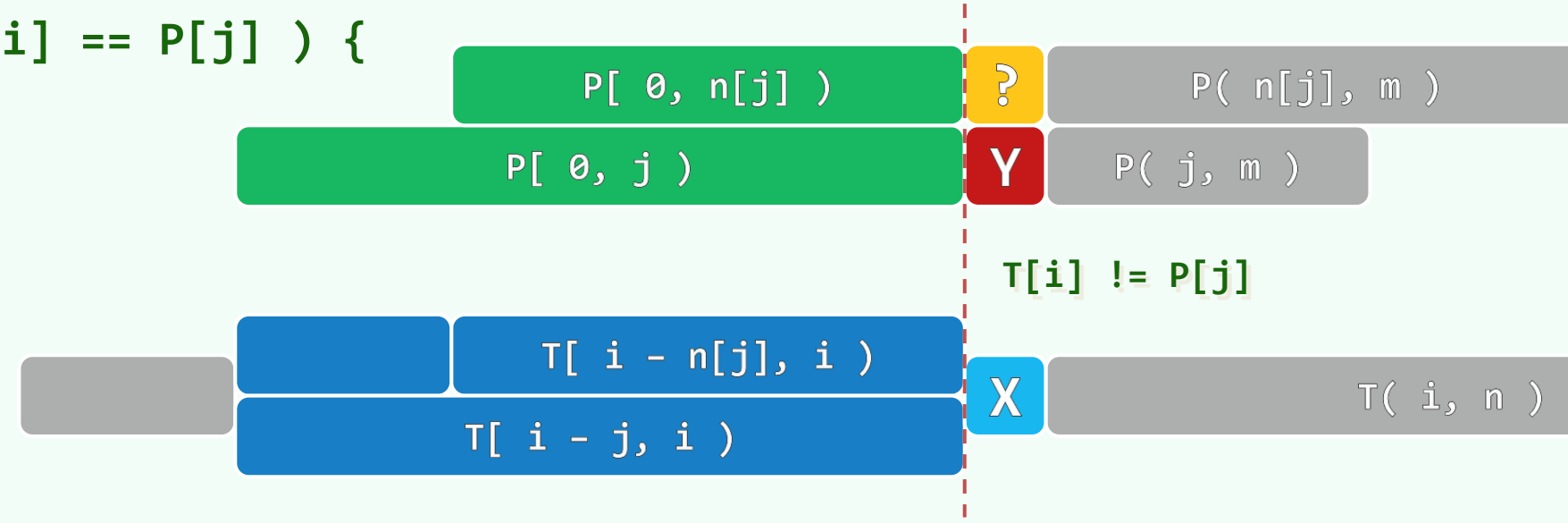
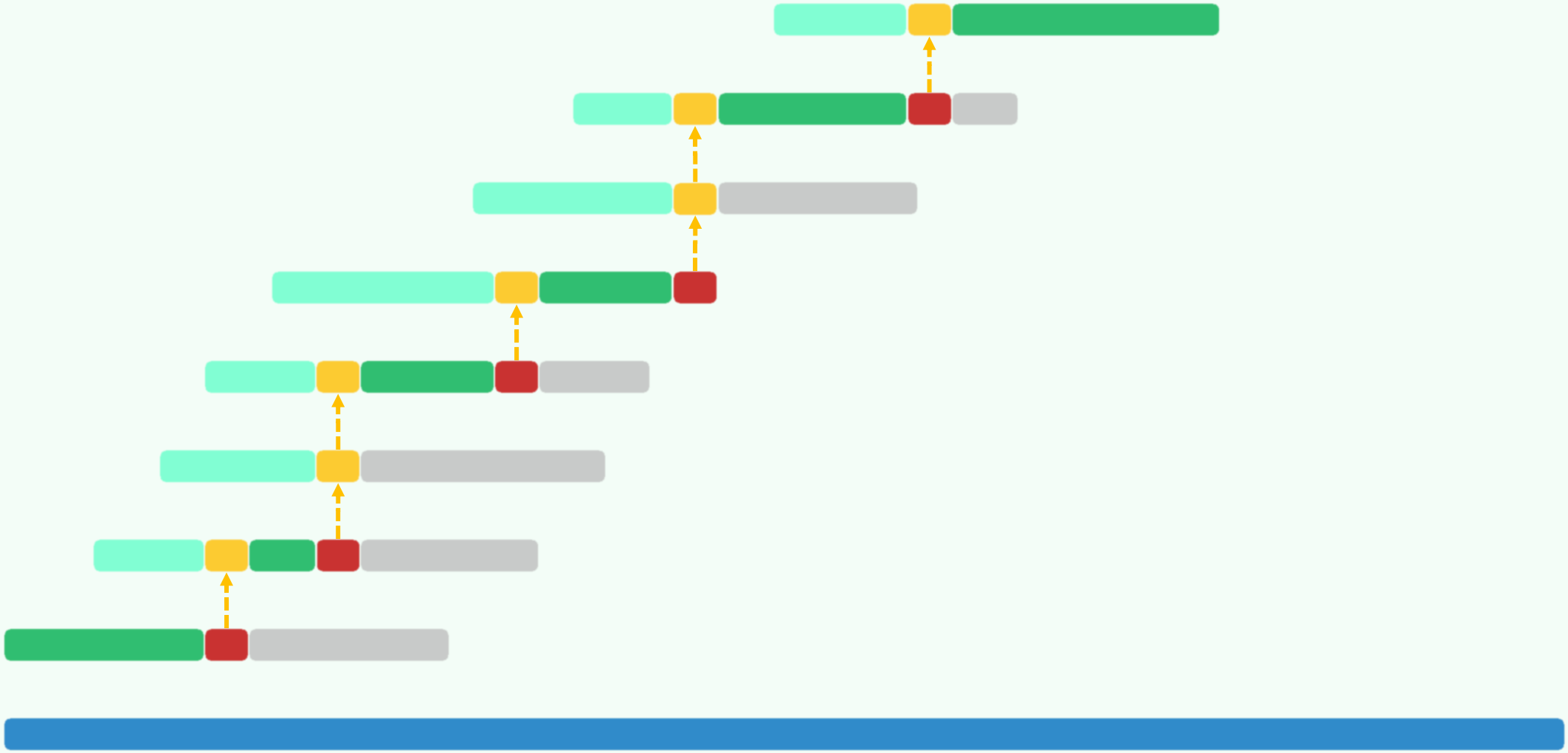
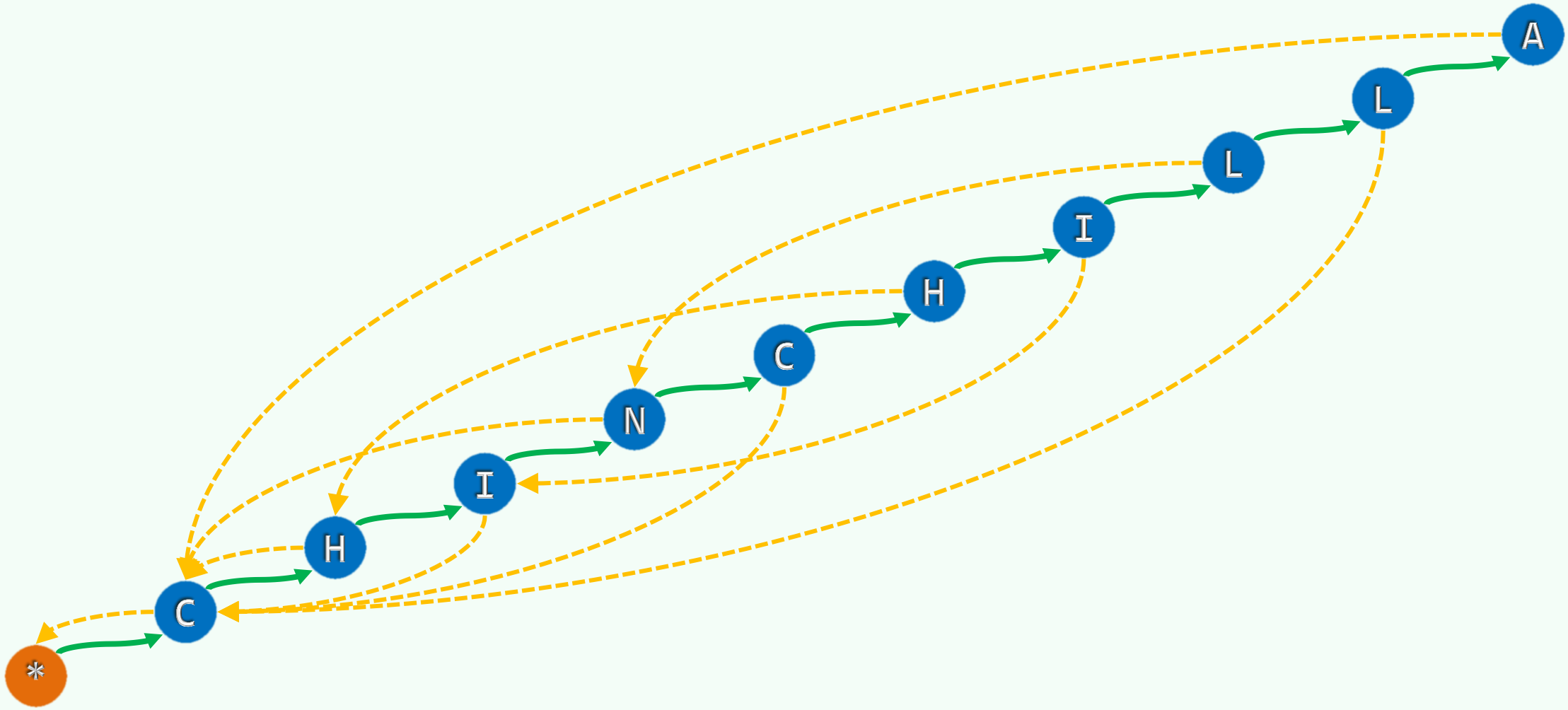


快速右移 + 绝不回退



每一个P串，都是一台自动机



模式串 ~ 匹配算法

❖ int match(char * T) { //对任一模式串（比如P = chinchilla），可自动生成如下代码

```
   int n = strlen(T); int i = -1; //文本串对齐位置
s_: ++i;                                                    // ↕
s0: (T[i] != 'C') ? goto s_ : if (n <= ++i) return -1;      // *          ~ ↕
s1: (T[i] != 'H') ? goto s0 : if (n <= ++i) return -1;      // *C         ~ *
s2: (T[i] != 'I') ? goto s0 : if (n <= ++i) return -1;      // *CH        ~ *
s3: (T[i] != 'N') ? goto s0 : if (n <= ++i) return -1;      // *CHI       ~ *
s4: (T[i] != 'C') ? goto s0 : if (n <= ++i) return -1;      // *CHIN      ~ *
s5: (T[i] != 'H') ? goto s1 : if (n <= ++i) return -1;      // *CHINC     ~ *C
s6: (T[i] != 'I') ? goto s2 : if (n <= ++i) return -1;      // *CHINCH    ~ *CH
s7: (T[i] != 'L') ? goto s3 : if (n <= ++i) return -1;      // *CHINCHI   ~ *CHI
s8: (T[i] != 'L') ? goto s0 : if (n <= ++i) return -1;      // *CHINCHIL  ~ *
s9: (T[i] != 'A') ? goto s0 : if (n <= ++i) return -1;      // *CHINCHILL ~ *
   return i - 10;                                           // *CHINCHILLA
}
```