Repeat Statement

statement =>

<assignment>

<repeat-statement> We know this from seeing the repeat statement. Equivalent to

Do While loop in C.

repeat syntax:

repeat <statement(s)> until <condition> ;

void condition(){

type t = L();

if ( t != B){

error();

}

}

1 2 3 4

**statements condition**

Balanced Not Balanced

jump from 4 to 1 on false. (jFalse)

void repeat\_st(){

match(TK\_REPEAT);

int target = ip; **//Make sure that target is local. Else recursion may cause bad addressing**

statements();

match(TK\_UNTIL)

condition();

gen1(op\_jfalse);

gen4(target);

}

**While Loop**

<while-statement>

while <condition> do <statement>

1 2 3 4

**Condition Statement**

4 jump to 1

2 jfalse to after 4.

void while\_st(){

match(TK\_WHILE);

int target = ip;

condition();

gen1(op\_jfalse);

int hole = ip;

gen4(0);

statement();

gen1(op\_jump);

gen4(target);

int save\_ip = ip;

set ip=hole;

gen4(save\_ip);

ip = save\_ip;

}

<statement> =>

<assignment>

<repeat-statement>

<while-statement>

<if-statement>

<for-statement>

<case-statement>

<goto statement>

<with-statement>

<begin-statement>

–----------------------------------------------------------------------------------------------------------------------------

**IF STATEMENT**

TWO FORMS:

if <condition> then <statement>

if <condition> then <statement> else <statement>

1 2 3 4

Condition statement

2 jfalse 4

–------------------------------------------------------------------------------------------------

1 2 3 4 5 6

Condition statement statement

4 jump to after 6

2 jfalse 5

= = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = =

void if\_statement(){

match(TK\_IF);

condition();

gen1(op\_jfalse);

int hole = ip;

gen4(0);

match(TK\_THEN);

statement();

if (curToken == TK\_ELSE){

int save\_ip = ip;

set ip=hole;

gen4(save\_ip);

ip = save\_ip;

statement();

}

}

= = = = = = = = =

BEGIN STATEMENT

begin\_statement(){

match(tk\_begin);

statement();

match(TK\_END);

}