

RAT18S Syntax Directed Translation Tests

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May 7, 2018

Test1

```
%%  
  
int sum;  
int max;  
int a;  
int b;  
int c;  
int x;  
  
if (sum < max) put(a + c); else get(b); endif  
  
if (sum < max) sum = sum + 1; else x = 100; endif  
  
put(a + c);  
  
get(b);  
  
sum Int 2000 max Int 2001 a Int 2002 b Int 2003 c Int 2004 x Int 2005  
1 PUSHM 2000 2 PUSHM 2001 3 LES 4 JUMPZ 9 5 PUSHM 2002 6 PUSHM 2004 7  
ADD 8 STDOUT 9 STDIN 10 POPM 2003 11 PUSHM 2000 12 PUSHM 2001 13 LES  
14 JUMPZ 19 15 PUSHM 2000 16 PUSHI 1 17 ADD 18 POPM 2000 19 PUSHI 100  
20 POPM 2005 21 PUSHM 2002 22 PUSHM 2004 23 ADD 24 STDOUT 25 STDIN 26  
POPM 2003
```

Test2

```
%%  
  
int a;  
int b;  
int i;  
int max;  
int sum;  
  
while (i < max) {
```

```

        if (a < b) a = a +1;
        else{
            sum = sum + i;
            i = i + 1;
        }
        endif
    }

while (i > max) {
    sum = sum + i;
}

while (i =< max) {
    sum = sum + i;
}

while (i => max) {
    sum = sum + i;
}

while (i == max) {
    sum = sum + i;
}

while (i ^= max) {
    sum = sum + i;
}

```

a Int 2000 b Int 2001 i Int 2002 max Int 2003 sum Int 2004

```

1 LABEL 2 PUSHM 2002 3 PUSHM 2003 4 LES 5 JUMPZ 23 6 PUSHM 2000 7
PUSHM 2001 8 LES 9 JUMPZ 14 10 PUSHM 2000 11 PUSHI 1 12 ADD 13 POPM
2000 14 PUSHM 2004 15 PUSHM 2002 16 ADD 17 POPM 2004 18 PUSHM 2002 19
PUSHI 1 20 ADD 21 POPM 2002 22 JUMP 1 23 LABEL 24 PUSHM 2002 25 PUSHM
2003 26 GRT 27 JUMPZ 33 28 PUSHM 2004 29 PUSHM 2002 30 ADD 31 POPM 2004
32 JUMP 23 33 LABEL 34 PUSHM 2002 35 PUSHM 2003 36 LEQ 37 JUMPZ 43 38
PUSHM 2004 39 PUSHM 2002 40 ADD 41 POPM 2004 42 JUMP 33 43 LABEL 44
PUSHM 2002 45 PUSHM 2003 46 GEQ 47 JUMPZ 53 48 PUSHM 2004 49 PUSHM
2002 50 ADD 51 POPM 2004 52 JUMP 43 53 LABEL 54 PUSHM 2002 55 PUSHM
2003 56 EQU 57 JUMPZ 63 58 PUSHM 2004 59 PUSHM 2002 60 ADD 61 POPM 2004
62 JUMP 53 63 LABEL 64 PUSHM 2002 65 PUSHM 2003 66 NEQ 67 JUMPZ 73 68
PUSHM 2004 69 PUSHM 2002 70 ADD 71 POPM 2004 72 JUMP 63

```

Test3

%%

! limitation -- declarations must be on their own line!

```

int a;
int b;
int c;
int x;
int i;
int max;
int sum;

```

```

boolean t;
boolean f;

```

```

x = t + f;
a = b + c;

```

```

a = b - c;

```

```

a = b * c;

```

```

a = b / c;

```

```

x = a + b * c;

```

```

x = 2 + 2;

```

a Int 2000 b Int 2001 c Int 2002 x Int 2003 i Int 2004 max Int 2005 sum Int 2006 t
Boolean 2007 f Boolean 2008

1 PUSHM 2007 2 PUSHM 2008 3 ADD 4 POPM 2003 5 PUSHM 2001 6 PUSHM 2002
7 ADD 8 POPM 2000 9 PUSHM 2001 10 PUSHM 2002 11 SUB 12 POPM 2000 13
PUSHM 2001 14 PUSHM 2002 15 MUL 16 POPM 2000 17 PUSHM 2001 18 PUSHM
2002 19 DIV 20 POPM 2000 21 PUSHM 2000 22 PUSHM 2001 23 PUSHM 2002 24
MUL 25 ADD 26 POPM 2003 27 PUSHI 2 28 PUSHI 2 29 ADD 30 POPM 2003