

Control Statements

C Control-Flow Stmts

- **if, with and without else clause**
 - if (c == eof) break**
 - if (x != 5) continue else x = 10;**
- **looping statements**
 - **while (Expr) Stmt**
 - **do Stmt while (Expr)**
 - **for (Expr; Expr; Expr) Stmt**
 - **break, continue**

C Control-Flow Statements

while ((c = getchar()) != eof) putchar(c);

Embedded side effects in expressions allowed!

for (j=0; s[j] == ' '; j++) ; **empty statement is body of for**

for (k=0; k<n; k++)

{ if (a[k]<0) continue; ... }

- **switch, a form of case**
- **goto**

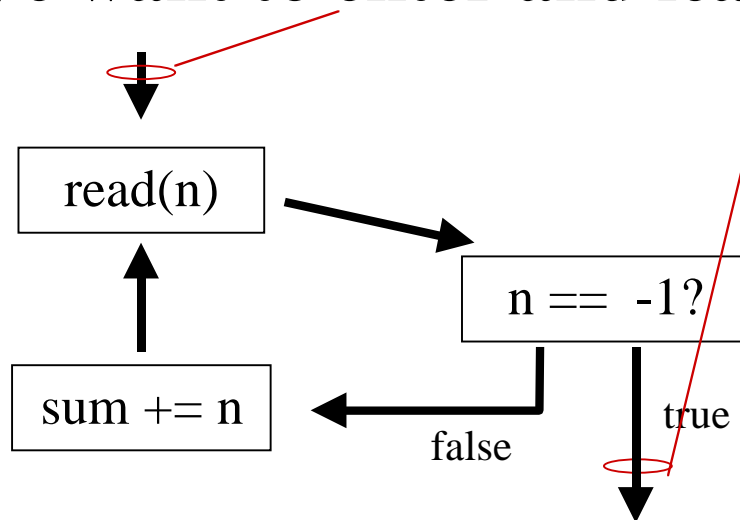
goto start

Structured Programming

- **Controversy in 1970's on PL design**
 - Goto-less programming
 - Dijkstra versus Knuth
- **Main idea: control flow should be obvious from syntactic structure of program**
 - single-entry, single-exit loops
 - Fortran and C both had goto statements
- *Boehm-Jacopini Theory: any control structure can be expressed as a combination of composition, conditionals and while loops!*

Loops

- **Problem:**
 - We want to enter and leave at different points



- **How can we do that in a single syntactic construct?**
 - **break statement**