for — for (exp1; exp2; exp3) stmt

**Description**

for is equivalent to

\[
\text{exp}_1 \\
\text{while } (\text{exp}_2) \{ \\
\text{stmt(s)} \\
\text{exp}_3 \\
\}
\]

stmt(s) is executed zero or more times. The loop continues as long as exp2 is not equal to zero.

**Syntax**

\[
\text{for } (\text{exp}_1; \text{exp}_2; \text{exp}_3) \text{ stmt}
\]

\[
\text{for } (\text{exp}_1; \text{exp}_2; \text{exp}_3) \{ \\
\text{stmts}
\}
\]

where exp1 and exp3 are optional, and exp2 must evaluate to a real scalar.

**Remarks and examples**

To understand for, enter the following program

\[
\text{function example}(n) \\
\{ \\
\text{for } (i=1; i<=n; i++) \{ \\
\text{printf}("i=%g\n", i) \\
\} \\
\text{printf}("done\n")
\}
\]

and run example(3), example(2), example(1), example(0), and example(-1).

Common uses of for include

\[
\text{for } (i=1; i<=\text{rows}(A); i++) \{ \\
\text{for } (j=1; j<=\text{cols}(A); j++) \{ \\
\text{...} \\
\}
\}
\]
2 for — for (exp1; exp2; exp3) stmt

Also see

[M-2] **break** — Break out of for, while, or do loop

[M-2] **continue** — Continue with next iteration of for, while, or do loop

[M-2] **do** — do ... while (exp)

[M-2] **Semicolons** — Use of semicolons

[M-2] **while** — while (exp) stmt

[M-2] **Intro** — Language definition