

How Can We Change PC to Different Values?

What if control flow does not converge?

```
; read degree N from keyboard
; loop from 0 to N
;   read coefficient from keyboard
;   continue with next loop iteration
```

After reading a number, **does PC change to start the loop, or to continue the loop?**

Use the JMP Instruction to Go to the Right Place

Remember the JMP instruction?

JMP BaseR ; PC ← BaseR

Use a register—R7, for example—

- to point to the next instruction
- after executing our common code.

Then,

- at the end of the common code,
- execute JMP R7.

Two Instructions Suffice to Execute the Common Code

Say that the code for reading a number starts at READNUM.

```
; read degree N from keyboard
LEA R7,#1
BRnzp READNUM
; loop from 0 to N
;   read coefficient from keyboard
```

```
READNUM
; ... code to read
;   a number from
;   keyboard
JMP R7
```

```
; continue with next loop iteration
```

Can Use the Same Sequence Many Times

Write the **same two instructions** for the other use of READNUM.

```
; read degree N from keyboard
LEA R7,#1
BRnzp READNUM
; loop from 0 to N
;   read coefficient from keyboard
LEA R7,#1
BRnzp READNUM
; continue with next loop iteration
```

```
READNUM
; ... code to read
;   a number from
;   keyboard
JMP R7
```