Addressing modes of DIY Calculator
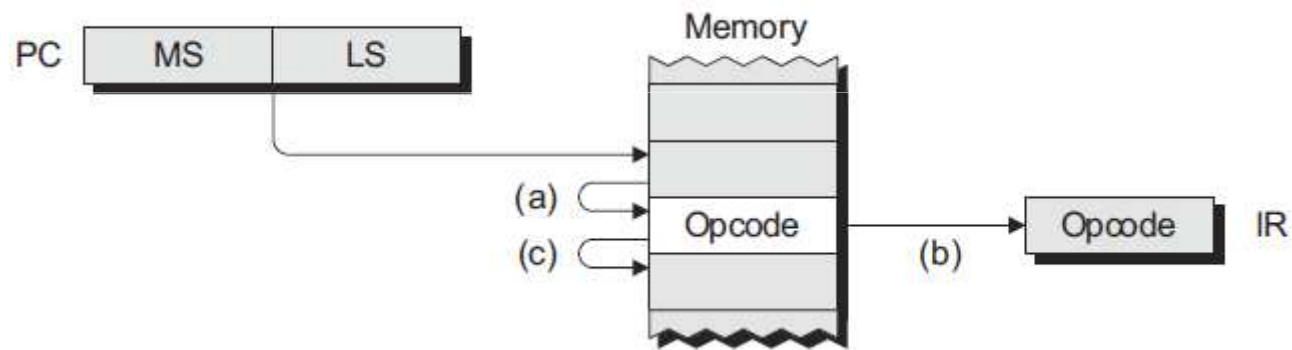
Summarized by Imre Varga

Implied (imp)

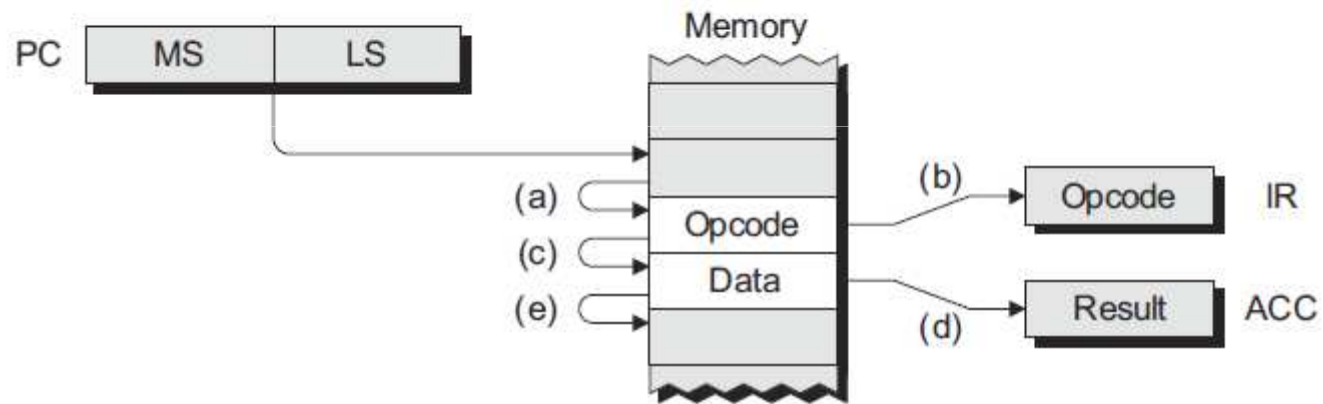Analogy:
```
int ACC;
ACC++;
```

PC | MS | LS

Memory

(a) Opcode

(b) Opcode IR

(c)

Instructions: CLRIM, DECA, DECX, HALT, INCA, INCX, NOP, POPA, POPSR, PUSHA, PUSHSR, ROLC, RORC, RTI, RTS, SETIM, SHL, SHR

Standard immediate (imm)

Analogy:
```
int ACC;
ACC=3;
```
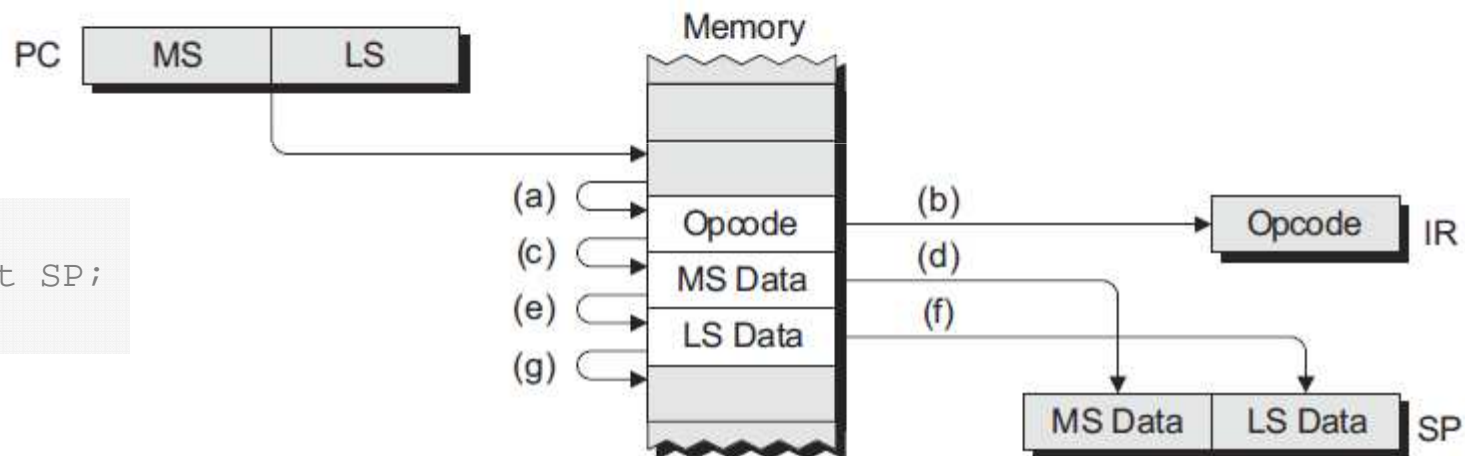
Instructions: ADD, ADDC, AND, CMPA, LDA, OR, SUB, SUBC, XOR

C. Maxfield, A. Brown:
A definitive guide to HOW COMUTERS DO MATH

Big immediate (imm)

Analogy:
```
long int SP;
SP=3L;
```


Instructions: BLDSP, BLDX, BLDIV

Standard absolute (abs)

Analogy:
```
int ACC, T;
int *p;
T=3;
p=&T;
ACC=*p;
```
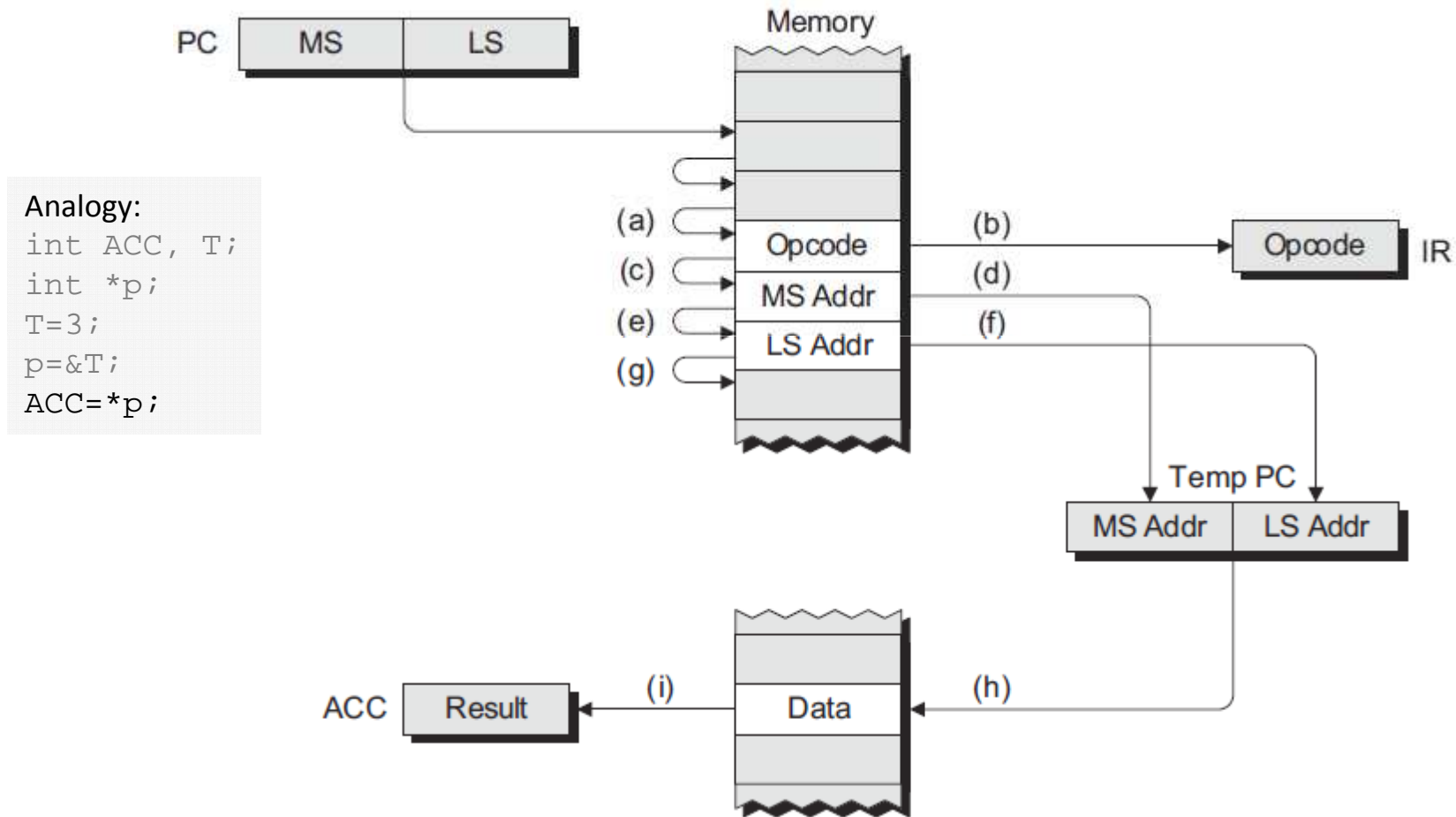
Instructions: ADD, ADDC, AND, CMPA, LDA, OR, STA, SUB, SUBC, XOR

Big absolute (abs)

Analogy:
```
long int SP, T;
long int *p;
T=3L
p=&T;
SP=*p;
```
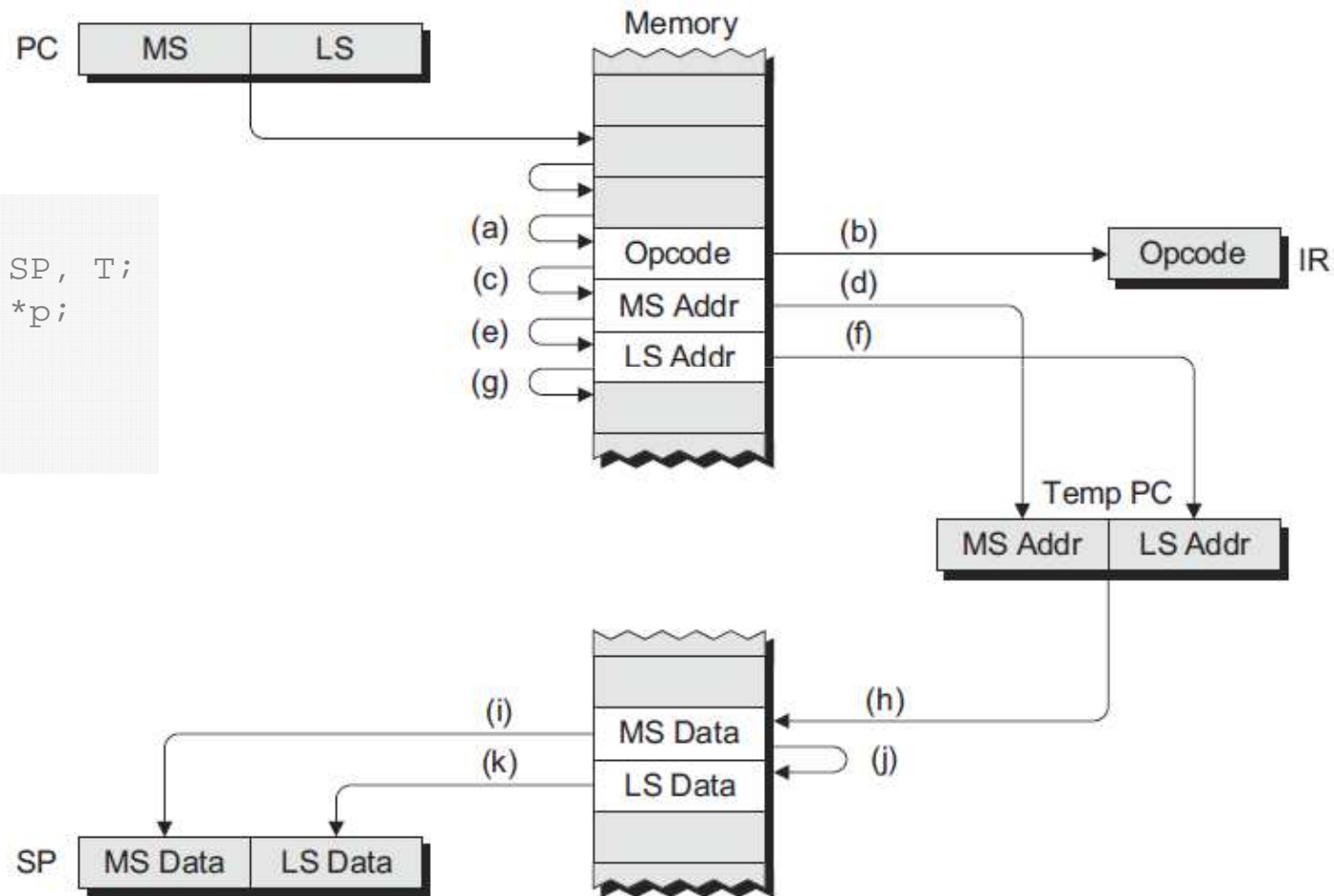
Instructions: BLDSP, BLDX, BLDIV, BSTSP, BSTX

Indexed (abs-x)

Analogy:
```
int ACC;
int T[3]={1,3,5};
int x=2;
ACC=*(T+x); //T[x]
```
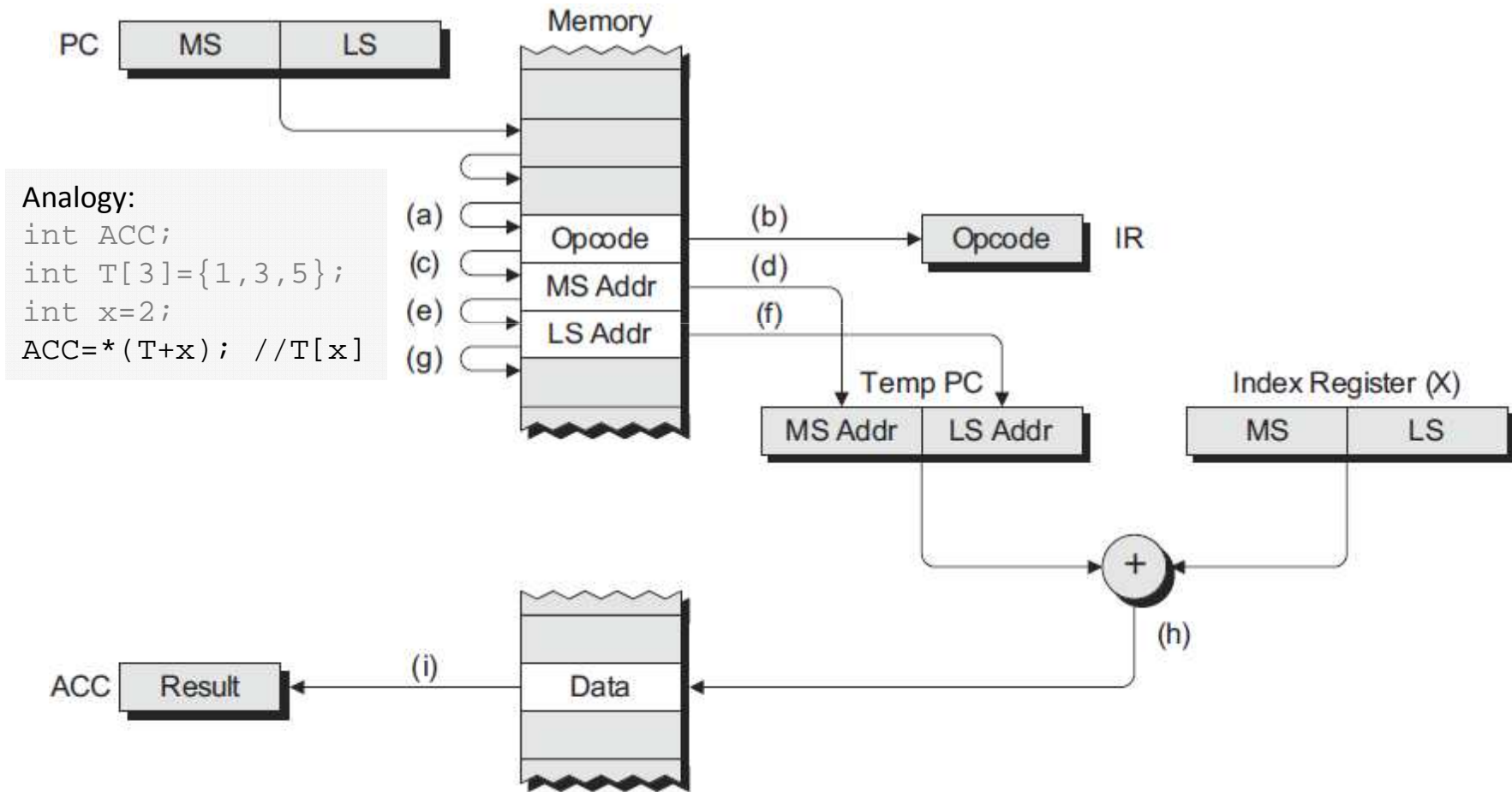
Instructions: ADD, ADDC, AND, CMPA, LDA, OR, STA, SUB, SUBC, XOR

Indirect (ind)

Analogy:
```
int ACC, T;
int *p1, **p2;
T=3;
p1=&T;
p2=&p1;
ACC=*(*p2);
```
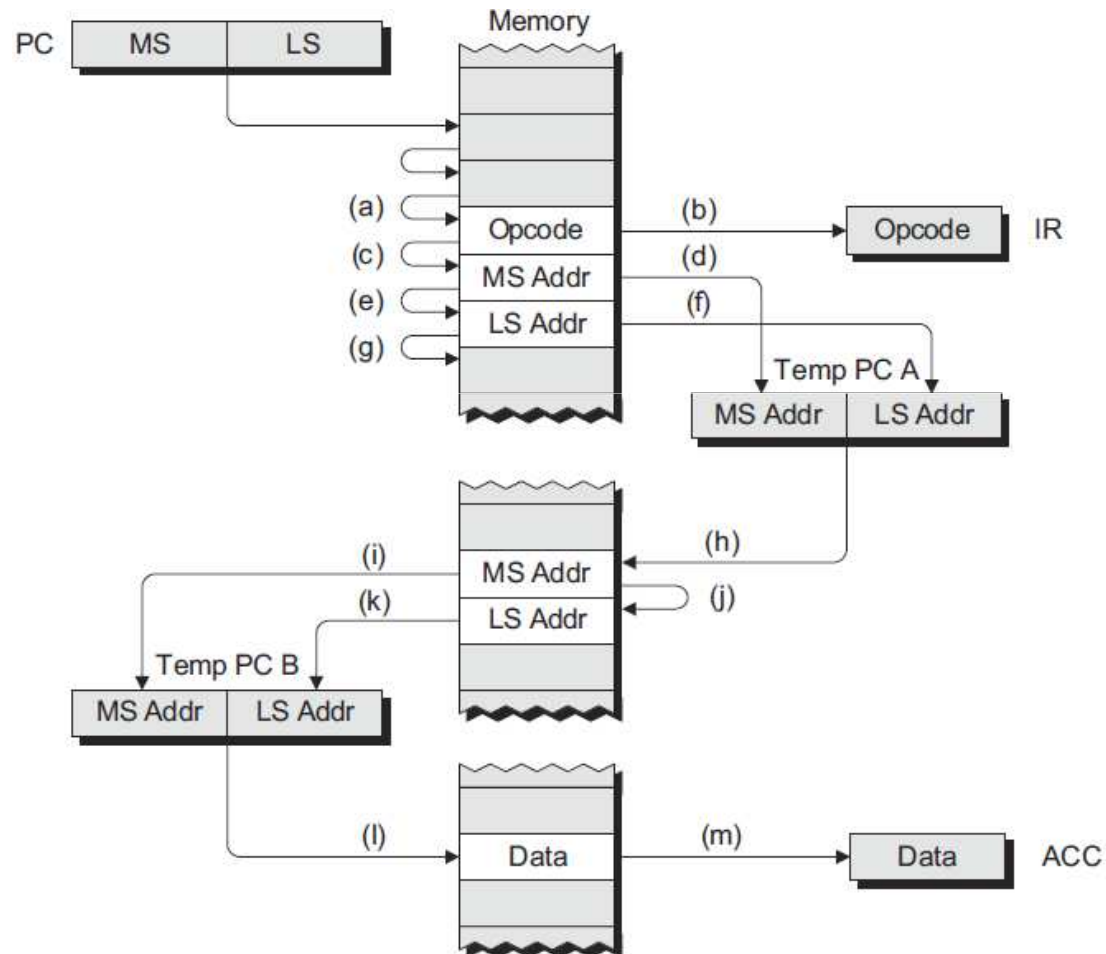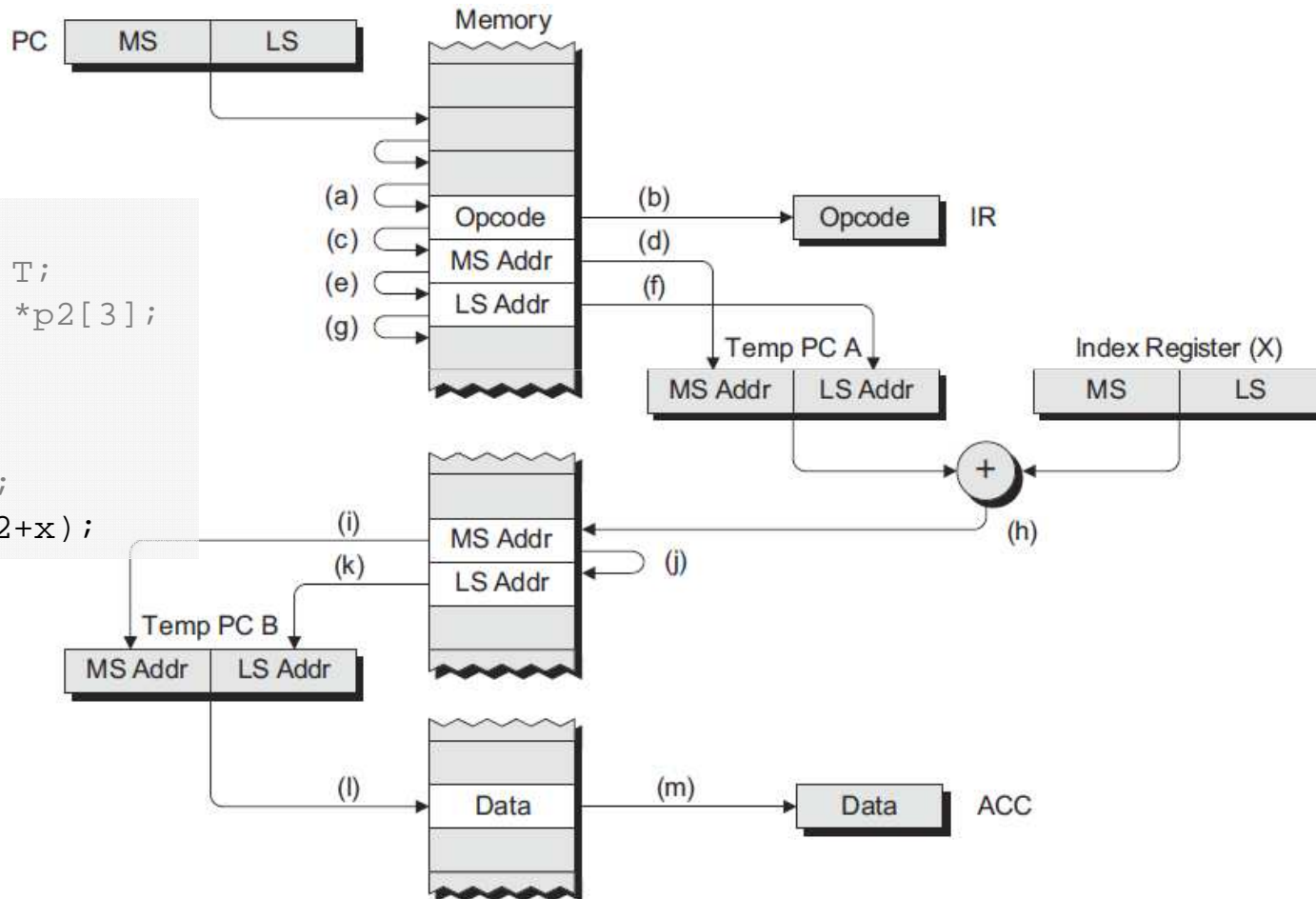

Instructions: LDA, STA

Preindexed indirect (x-ind)

Analogy:
```
int ACC, T;
int *p1, *p2[3];
int x=2;
T=3;
p1=&T;
p2[2]=p1;
ACC=**(p2+x);
```
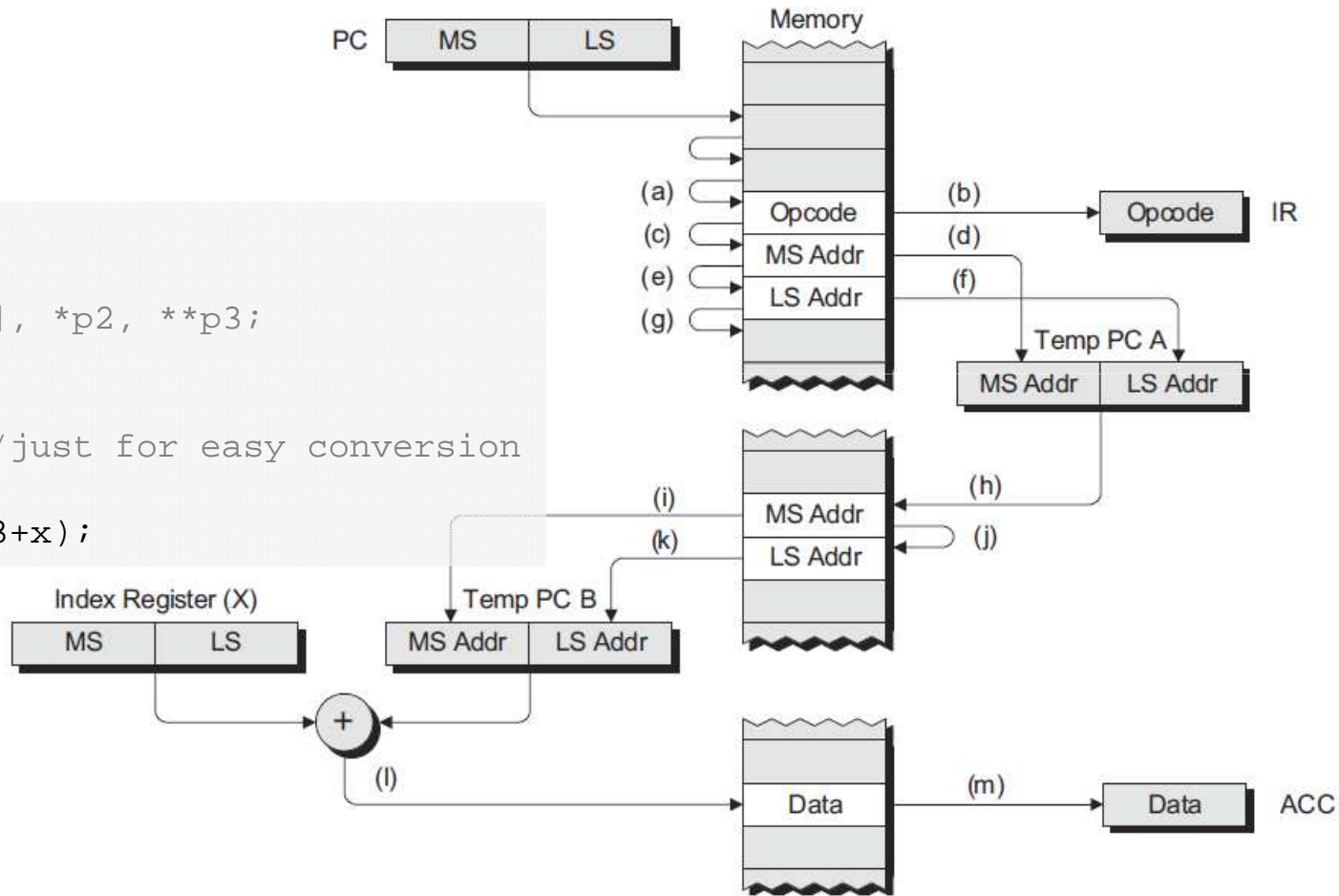
Instructions: LDA, STA

Indirect postindexed (ind-x)

Analogy:
```
int ACC;
int p1[3], *p2, **p3;
int x=2;
p1[2]=3;
p2=p1; //just for easy conversion
p3=&p2;
ACC=*(*p3+x);
```


Instructions: LDA, STA

Instructions & addressing

	imp op	imp #	imm op	imm #	abs op	abs #	abs-x op	abs-x #	ind op	ind #	x-ind op	x-ind #	ind-x op	ind-x #
ADD			$10	2	$11	3	$12	3						
ADDC			$18	2	$19	3	$1A	3						
AND			$30	2	$31	3	$32	3						
BLDIV			$F0	3	$F1	3								
BLDSP			$50	3	$51	3								
BLDX			$A0	3	$A1	3								
BSTSP					$59	3								
BSTX					$A9	3								
CLRIM	$09	1												
CMPA			$60	2	$61	3	$62	3						
DECA	$81	1												
DECX	$83	1												
HALT	$01	1												
INCA	$80	1												
INCX	$82	1												
JC					$E1	3								
JMP					$C1	3	$C2	3	$C3	3	$C4	3	$C5	3
JN					$D9	3								
JNC					$E6	3								
JNN					$DE	3								
JNO					$EE	3								
JNZ					$D6	3								

	imp op	imp #	imm op	imm #	abs op	abs #	abs-x op	abs-x #	ind op	ind #	x-ind op	x-ind #	ind-x op	ind-x #
JO					$E9	3								
JSR					$C9	3	$CA	3	$CB	3	$CC	3	$CD	3
JZ					$D1	3								
LDA			$90	2	$91	3	$92	3	$93	3	$94	3	$95	3
NOP	$00	1												
OR			$38	2	$39	3	$3A	3						
POPA	$B0	1												
POPSR	$B1	1												
PUSHA	$B2	1												
PUSHSR	$B3	1												
ROLC	$78	1												
RORC	$79	1												
RTI	$C7	1												
RTS	$CF	1												
SETIM	$08	1												
SHL	$70	1												
SHR	$71	1												
STA					$99	3	$9A	3	$9B	3	$9C	3	$9D	3
SUB			$20	2	$21	3	$22	3						
SUBC			$28	2	$29	3	$2A	3						
XOR			$40	2	$41	3	$42	3						