Simple TAC Instruction Set

TAC _

This handout summarizes a simple TAC intermediate language. There are many choices as to the exact instructions to include in such a language, and you will probably want to modify and extend this variant when we translate IC programs into TAC.

____ Instruction Forms _____

• Arithmetic and Logic Instructions.

The basic instruction forms are:

a = b OP c a = OP b

where OP can be

an arithmetic operator:	ADD, SUB, DIV, MUL
a logic operator:	AND, OR, XOR
a comparison operator:	EQ, NEQ, LE, LEQ, GE, GEQ
a unary operator:	MINUS, NEG

• Data Movement Instructions.

Copy:a = bLoad/store:a = *bArray load/store:a = b[i]a = b[i]a[i] = bField load/store:a = b.fa = b.fa.f = b

• Branch Instructions.

Label: label L Unconditional jump: jump L Conditional jump: cjump a L (jump to L if a is true)

• Function Call Instructions.

Call with no result: call $f(a_1, \ldots, a_n)$ Call with result: $a = call f(a_1, \ldots, a_n)$

(Note: there is no explicit TAC representation for parameter passing, stack frame setup, etc.)