Code Generation 2

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1 Exercise 79

1.
for (var = lbound; var < ubound;step) {
    S(var)
}

GCStm(for(v=lb;v < ub;step){S(v)})=
let end,debut := new Label()
(Clb,Rv) ←GCAexp(lb)
(Cub,Ri1) ←GCAexp(ub)
(Cst,Rs)← GCAexp(step)
Clb‖
debut:‖
Cub‖
Cst‖
CMP Rv Ri1‖
BGE end‖
GCStm(S(v),Rv)‖
ADD Rv,Rv,Rs‖
BA debut‖
end:

2.
Prologue(44)

SUB R0,R0,R0
ADD R1,R0,R0
ST R1,[FP-44]
debut:
ADD R2,R0,10
LD R1,[FP-44]
CMP R1,R2
BGE end:
ADD R3,R0,R0
LD R1,[FP-44]
ADD R4,R1,1
MUL R5,R4,4

ST R3,[FP-R5]
LD R1,[FP-44]
ADD R1,R1,1
ST R1,[FP-44]
BA debut
end:
Epilogue

3.Non fait, trop similaire.

2 Exercise 80

1. repeat S until b

GCStm(repeat S until b)=
let begin,end:=new Label()
begin:‖
GCStm(S)‖
GCBexp(b,end,begin)‖
end:

2. b1 xor b2

GCBexp(b1 xor b2,l1,l2)=)\\ l1,l2 =Label
let bt1,bf1= new label()
GCBexp(b1,bt1,bf1)
bt1:
GCBexp(b2,l2,l1)\\ b1=True
bf1:
GCBexp(b2,l1,l2)\\ b1=False

3. b ? e1 : e2

\\ Pas forcement juste, en attente de correction.
GCAexp(b ? e1 : e2)=
let R1 =new Alloc()
let b1,b2 =new Label()
GCBexp(b,b1,b2)
b1:
ADD R1,GCAexp(e1),0
b2:
ADD R1,GCAexp(e2),0