

c	<pre> dr <-newTemp() code.add(InstructionLETL(dr, c)) return dr </pre>
x	<pre> #get the place associated to x. regval<-getTemp(x) return regval </pre>
e_1+e_2	<pre> t1 <- GenCodeExpr(e_1) t2 <- GenCodeExpr(e_2) dr <- newTemp() code.add(InstructionADD(dr, t1, t2)) return dr </pre>
e_1-e_2	<pre> t1 <- GenCodeExpr(e_1) t2 <- GenCodeExpr(e_2) dr <- newTemp() code.add(InstructionSUB(dr, t1, t2)) return dr </pre>
true	<pre> dr <-newTemp() code.add(InstructionLETL(dr, 1)) return dr </pre>
$e_1 < e_2$	<pre> dr <- newTemp() t1 <- GenCodeExpr(e1) t2 <- GenCodeExpr(e2) endrel <- newLabel() code.add(InstructionLET(dr, 0)) #if t1>=t2 jump to endrel code.add(InstructionCondJUMP(endrel, t1, ">=" , t2)) code.add(InstructionLET(dr, 1)) code.addLabel(endrel) return dr </pre>

FIGURE 1 – 3@ Code generation for numerical or Boolean expressions (t1 and t2 are already defined)

<p>$x = e$</p>	<pre> dr <- GenCodeExpr(e) #a code to compute e has been generated if x has a location loc: code.add(instructionCOPY(loc,dr)) else: storeLocation(x,dr) </pre>
<p>$S1; S2$</p>	<pre> #concat codes GenCodeSmt(S1) GenCodeSmt(S2) </pre>
<p><i>if b then S1 else S2</i></p>	<pre> lelse,lendif <-newLabels() t1 <- GenCodeExpr(b) #if the condition is false, jump to else code.add(InstructionCondJUMP(lelse, t1, "=", 0)) GenCodeSmt(S1) #then code.add(InstructionJUMP(lendif)) code.addLabel(lelse) GenCodeSmt(S2) #else code.addLabel(lendif) </pre>
<p><i>while b do S done</i></p>	<pre> ltest,lendwhile <-newLabels() code.addLabel(ltest) t1 <- GenCodeExpr(b) code.add(InstructionCondJUMP(lendwhile, t1, "=", 0)) GenCodeSmt(S) #execute S code.add(InstructionJUMP(ltest)) #and jump to the test code.addLabel(lendwhile) #else it is done. </pre>

FIGURE 2 – 3@ Code generation for Statements